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WOOD, NATHANIEL K., M.D.
WRIGHT, GEORGE H., M.D.
YOUNG, J. HERBERT, M.D.

INDEX TO VOLUME CLXVIII.

AUTHORS

Adams, Herbert W. Oral prophylaxis, 233.
Adler, Herbert M. The experimental production of lesions resembling pellagra, 454. A note on a circumscribed epidemic of diphtheria, 192.
Albert, L. L. Ball-valve apparatus for the administration of salvarsan, 392.
Arnold, Horace D. The problem of graduate medical instruction, 265.

Barnes, Harry Lee, and Fulton, Frank Taylor. A report of seventeen cases of pulmonary tuberculosis treated by artificial pneumothorax, 917.
Barney, J. Dellinger. The symptomatology of renal tumors; a study of seventy-four cases from the massachusetts General Hospital, 369. Tuberculosis of the epididymis: its effect upon testicle and prostate, 923.
Bartlett, Willard. A consideration of seventy-six operations in which Lane bone plates were used, 149.
Baker, Harold W. Jackson membrane, 766.
Beach, S. J. A new ether blower, 202.
Binney, Horace. The value of high frequency cauterization in the treatment of vesical papillomata, 308.
Bond, E. D., and Peabody, A. H. Brain tumor. Operation. Autopsy findings, 90.
Borden, C. R. C. Diseases of the middle ear and mastoid cells, 221.
Bowditch, Henry I. Artificially dried casein.—Preliminary investigation, 722.
Bowen, John T. Abuse of the x-rays in the treatment of skin affections, 682. Report on dermatology, 652.
Brackett, E. G. Diagnosis of the tubercular character of joint disease, 673.
Bradford, E. H. Medical education and the Harvard Medical School, 261.
Briggs, J. Emmons. Appendix excisor, 847.
Brigham, F. G.; Fitz, R.; and Minot, J. J. Bulbar paralysis in typhoid fever, 957.
Brown, Percy. The diagnostic evidence obtained by x-rays from the lateral aspect of the skull, with especial reference to the base and its adnexa, 882.
Buchols, Hermann. Hand lesions following injuries of the upper extremities, 561; **Buchols, Hermann; Osgood, R. B.; Soutter, Robert; Danforth, Murray E., and Low, H. C.** Progress in orthopedic surgery, 461.
Buckingham, E. M. Protection of milk, 785.
Burnett, Francis Lowell. Fecal form, 574.
Burns, N. B. Seasonal variation of the symptomatology of pulmonary tuberculosis, 421.

Callahan, C. T. Control of the careless and incorrigible consumptive, 794.
Carolin, William T. A method of supervision in medicine, 921.
Cates, Benjamin Brabson. A method of dealing with the peripheral branches of the fifth cranial nerve in tic douloureaux, 384.
Cheever, David. Acute angulation of the terminal ileum as a cause of intestinal obstruction in certain cases of acute appendicitis, 719.
Chesley, Frederick E. The control of ophthalmia neonatorum in Massachusetts with suggestions for the improvement of existing conditions, 117.
Chute, Arthur L. The early recognition of tumors of the bladder, 302.
Clouston, Sir Thomas. "The argument for the large State Insane Hospital," 297.
Cody, Edmond F. The registered midwife: A necessity, 416. Recurrent variola, 726.
Cohoon, Elisha H., and Farnell, Frederick J. Pellagra, with a report of cases, 50.
Coolidge, Algernon. The etiology of hay fever, 503.
Couch, William Pearce. Syphilis and the surgical outpatient, 508. Fracture of the fifth metatarsal bone by inversion of the foot, 96. Non-union of the clavicle in a child, 685. A case of blood cyst of the chest wall, 686.
Courtney, J. W. The views of Plato and Freud on the etiology and treatment of hysteria: A comparison and critical study, 649. On the nature of the feeling of unreality, 198.
Cross, Harold DeWitt A word on the scientific, economic and social program of the Forsyth Dental Infirmary, 238.
Cumston, Charles Greene. A report of two cases of tuberculous mesenteric glands of the cecal region, 201. A note on the history of retrograde catheterization in ruptures of the urethra, 232.
Cunningham, John H. The importance of venereal disease, 77.
Cushing, Harvey. Concerning diabetes insipidus and the polyurias of hypophysial origin, 901.

Danforth, Murray S.; Osgood, R. B.; Soutter, Robert; Buchols, Hermann, and Low, H. C. Progress in orthopedic surgery, 461.
Davis, Michael M., Jr., and Hartshorn, Edward. Follow-up work as an element of effective treatment in out-patient clinic for eye diseases, 538.
DeNormandie, Robert L. The Medical Milk Commission of Boston, 615.
Drinkwater, Arthur, and Hawes, John B., 2d. The relation of accident and injury to pulmonary tuberculosis from a medico-legal point of view, 82.
Duncan, Charles H. Autotherapy in acute articular rheumatism, 350.
Dunn, Charles Hunter. Clinical Studies on feeding in infantile malnutrition, 161.. **Dunn, Charles Hunter, and Roteh, Thomas Morgan.** Report in pediatrics, 92.

Eastman, Alexander C. Intraventricular hemorrhage of the newborn, 165.
Emerson, Francis Patten. Chronic focal suppuration of the head with general symptoms, especially in adults, 85.

Farnell, Frederic J., and Cohoon, Elisha H. Pellagra, with a report of cases, 50.
Faunce, Calvin B., and Jack, Frederick L. Hemangioendothelioma of the temporal bone with pathological report, 278.
Fisher, Jennie Weston. Common colds and vaccine therapy, 834.
Fiske, Eben W. The diagnostic significance of the leucocyte count in osteomyelitis and tuberculosis of the bones in childhood, 606.
Fitz, R.; Brigham, F. G.; and Minot, J. J. Bulbar paralysis in typhoid fever, 957.
Floyd, Cleaveland. Some results of dispensary work in the control of tuberculosis, 43.
Foord, J. A. The production of certified milk, 612.
Friedenwald, Julius. On the frequency of the transition of ulcer of the stomach into cancer, 796.
Fulton, Frank Taylor, and Barnes, Harry Lee. Report of seventeen cases of pulmonary tuberculosis treated by artificial pneumothorax, 917.

Gallivan, W. J. School inspection and dental caries, 234.
Gerber, Isaac. A case of infection with hymenolepis (taenia) nana, the dwarf tapeworm, 346.
Goldthwait, Joel E. An anatomic explanation of many of the cases of weak or painful backs, as well as of many of the leg paralyses, 128.
Goodall, Harry W. The favorable influence of periods of a protein free diet in chronic nephritis, 760.
Goodman, Edward H. A case of "syphilitic periostitis" cured by salicylates, 927.
Green, Charles M. The conduct of labor without vaginal examinations, 525. The conservation treatment of toxemia of pregnancy with convulsions, 376.
Green, Robert M. The role of ptosis in gynecology, 12. The sacrifice to Asklepios: A mime of Herondas, 46. Tranfusion in the treatment of ruptured tubal pregnancy, 270. A convenient anatomic device, 546. Infections of the upper urinary tract in infancy and childhood, 645. Tuberculous osteomyelitis of the digits, 797. Cholecystitis and cholelithiasis associated with pregnancy, 679
Green, Robert M., Kellogg, Foster S., and Harvie, Peter L. Spastic paralytic ileus, 580.
Greene, Henry Copley. Ophthalmia neonatorum; administration standards, 275.
Greene, Joseph B. Diagnosis and treatment of diphtheria, 911.
Grenz, Donald. Infantile beri-beri in the Philippines 676.
Groves, Arthur L. A case of empyema due to bacillus coli, 765.

Hartshorn, Edward, and Davis, Michael M., Jr. Follow-up work as an element of effective treatment in an out-patient clinic for eye diseases, 538.
Harvie, Peter L.; Green, Robert M.; and Kellogg, Foster S. Spastic paralytic ileus, 580.
Hawes, John B., 2d, and Drinkwater, Arthur. The relation of accident and injury to pulmonary tuberculosis from a medico-legal point of view, 83.
Hawes, John B., 2d., Walcott, Henry F., and Thorndike, Paul. Memorials to Arthur Tracy Cabot, M.D., 409.
Hill, Charles A. Report on the use of pituitary extract (pituitrin) in surgical shock; 720.
Hoseif, James A. Tuberculosis and public health in South Africa, 195.
Hoyt, Robert N. Efficient boards of health, 789.
Hubbard, J. C. Transduodenal choledochotomy, 723. An unusual obstetrical history, 459. Progress in the surgery of the blood vessels, 242.
Huntington, James Lincoln. The midwife in Massachusetts: Her anomalous position, 418.

Jack, Frederick L., and Faunce, Calvin B., Jr. Hemangioendothelioma of the temporal bone with pathological report, 278.
Jordan, James O. Some features of the milk situation, 609.

Kellogg, Foster S.; Green, Robert M.; and Harvie, Peter L. Spastic paralytic ileus, 580.
Kendall, Arthur I. The relation of bacterial metabolism to internal medicine, 825.
Kenieston, J. M. Self-mutilation by the insane, 571.

Ladd, W. E. Toxicity of bile with the report of an unusual case, 166. Progress in the diagnosis and treatment of intussusception, 542.
Lancaster, Walter B. A suggestion for improving the training of ophthalmologists, 576. On so-called binasal hemianopsia in brain tumor, 878.
Leary, Timothy. The purpose of the Forsyth Dental Infirmary, 235.
Lee, Roger I. Typhus fever (Brill's disease) at the Massachusetts General Hospital in ten years (Oct. 1, 1902, to Oct. 1, 1912), 122.
Leen, Thomas F. Trichinosis, 601.
Lothrop, Howard A. The treatment of hypospadias, 48. Bilateral subclavian aneurysms, 535. An operation for the cure of vaginal hernia, 578. The closure of obstinate perineal fistulæ following operation for stricture of urethra. The prevention of these fistulæ, 188.
Lovett, Robert W. The work of the Massachusetts State Board of Health in the investigation of paralysis, 109.
Low, H. S.; Osgood, R. B.; Soutter, Robert; Danforth, Murray S.; and Buchols, Hermann. Progress in orthopedic surgery, 461.
Lynch, H. L., and Place, Edwin, H. The treatment of chronic stenosis of the larynx and trachea with discussion, 753.

MacDougall, Robert. Psychology and the physiological sciences, 865.
Marshall, H. W. A collection of facts, ideas and theories relating to the diverse elements that contribute to success in treatment of joint diseases, 533, 585, 425.
McMurtrie, Douglas C. Marine Hospital. Berck-Sur-Mer, principally for crippled children, 14.
Metcalf, Carleton R. Do results justify the use of phylacogens? A report of forty cases, 951.
Millett, J. A. P., and Wolbach, S. B. Suffuse subdural lipomatosis of the spinal cord in an infant, 681.
Minot, J. J.; Fitz, R.; and Brigham, F. C. Bulbar paralysis in typhoid fever, 957.
Morse, G. W., and Porter, C. A. A case of gastro-mesenteric ileus, 506.
Morse, John Lovett. Diabetes in infancy and childhood, 530. Discussion of papers of Professors Jordan and Foord and of Dr. DeNormandie, 617. Report on progress in pediatrics. Boiled milk in infant feeding, 726.

Neff, Mary Lawson. Mental symptoms associated with renal insufficiency, 272.
Newburgh, L. H. The dietetic treatment of constipation, 757.
Nofer, George H. The digestivity of the human gastric juice compared to the digestivity of various remedies recommended in disorders of the stomach, 873.
Nowell, Howard W. An etiological factor in carcinoma and its possible influence on treatment, 838

O'Neil, R. F. Observations on recent cases of bladder tumors at the Massachusetts General Hospital, with special reference to operative technic, 305.
Osgood, Robert B. The prevention of foot strain, 380; **Osgood, Robert B.; Soutter, Robert; Buchols, Hermann; Danforth, Murray S., and Low, H. C.** Report of progress in orthopedic surgery, 461.

Packard, Horace. A case of seemingly hopeless peritonitis apparently cured by hypodermic injections of "marine plasma," 544.
Paine, Harlan L. Results of the Wassermann in two hundred consecutive admissions to the Danvers State Hospital, 501. A statistical study of remissions in general paralysis, 684.
Palfrey, Francis W. Progress in internal medicine, 801.
Park, William H. Antitoxin administration, 73.
Peabody, A. H., and Bond, E. D., brain tumor, 90.
Pearson, Maurice W. Popular medical education, 941.
Place, Edwin, H. Treatment of chronic stenosis of the larynx and trachea.
Porter, C. A., and Morse, G. W. A case of gastro-mesenteric ileus, 506.
Pratt, Joseph H. The neglect of hydrotherapy in America, 842.

Reynolds, Edward. Abnormal peritoneal sacculation of the ovaries causing acute pain, 239.
Rice, Allen G. Open-window schoolrooms, 791.
Richardson, D. L. Treatment of laryngeal stenosis following diphtheria, 749.
Richardson, Mark W. The control of the careless and incorrigible consumptive, 787.
Risley, Edward H. Shock. A review of the theories and experimental data to date, 112.
Rogers, Mark H. Pathology of typhoid spine, 348.
Rotch, Thomas Morgan, and Dunn, Charles Hunter. Report on pediatrics, 92.

Sever, James Warren. Coxa-vara: Some observations on this condition with especial reference to the question of spontaneous recovery from this deformity, 495. Orthopedic principles for use in general practice, 1.
Sherman, Warren H. Case of pellagra, 50.
Simmons, Channing C. Localized osteomyelitis of the long bones, 637.
Sisson, Warren R., and Talbot, Fritz B. Some factors which influence the excretion of formalin in the urine of children and infants taking hexamethylenamin, 485.
Smith, George W. The excretion of formalin in the urine; an inquiry into the accuracy of Burnam's test, 713.
Smith, Theobald. The etiology of hay fever, 504.
Sobotky, Irving. Persistent mouth breathing following adenoidectomies, 230.
Soutter, Robert; Osgood, R. B.; Buchols, Hermann; Danforth, Murray S.; and Low, H. C. Progress in orthopedic surgery, 461.
Stanton, Joseph. Diverticulitis, 343.
Stedman, Henry R. Report on mental diseases, 310, 352.
Swift, Walter B. Studies in speech disorder, 160.

Talbot, Fritz B., and Sisson, Warren R. Some factors which influence the excretion of formalin in the urine of children and infants taking hexamethylenamin (urotropin), 485.
Tenney, Benjamin. Ureteral obstruction, 373.
Thayer, W. S. On some functions of the free dispensary, 185.
Thorndike, Paul; Walcott, Henry F.; and Hawes, John B., 2d. Memorials to Arthur Tracy Cabot, M.D., 409.
Truesdale, P. E. Unilateral hematuria in chronic nephritis, 156.
Tyrode, Maurice Vejux. Tuberculosis of mesenteric glands simulating gastric ulcer, 351.

Voorhees, Irving W. Serous and suppurative labyrinthitis,—differential diagnosis, 716.

Walcott, Henry F.; Thorndike, Paul; Hawes, John B., 2d. Memorials to Arthur Tracy Cabot, M.D., 409.
Watson, F. S. Report of 110 cases of renal and ureteral calculi and of ten cases simulating these conditions, with comments, 37. F. S. Watson and Paul Thorndike, report on progress in genito-urinary surgery, 16.
White, Franklin W. A few important points in x-ray examination of the digestive tract, 449.
Wilcox, DeWitt G. Head injuries of the new-born, 568.
Wile, Ira S. Social pediatrics, 885.
Wilson, J. G. The diagnosis of feeble-mindedness among emigrants, 226.
Williams, John T. The present position of abdominal Cesarean section in eclampsia, 456. A review of the progress in pathology for 1912, 582, 618.
Withington, Charles F. Cerebral complications in pneumonia, 945.
Wolbach, S. B. Progress in Pathology, 582, 618. **Wolbach, S. B., and Millett, J. A. P.** Suffuse subdural lipomatosis of the spinal cord in an infant, 681.
Wood, Nathaniel K. Six years' treatment of pulmonary tuberculosis by the class method, 7.
Wright, George H. The teeth and their relation to the body, 232.

Young, J. Herbert. Typhoid vaccination, 383.

SUBJECTS.

Abnormal Perineal Sacculation of the Ovaries, Edward Reynolds, M.D., 239.

Acute Angulation of the Terminal Ileum as a cause of intestinal obstruction in certain cases of acute appendicitis, David Cheever, M.D., 719.

Addresses. The conduct of labor without vaginal examinations, Charles M. Green, A.B., M.D., 525; memorials to Arthur Tracy Cabot, M.D., Henry F. Walcott, M.D., Paul Thorndike, M.D., John B. Hawes, 2d, M.D., 409; on some functions of the free dispensary, W. S. Thayer, M.D., 185; antitoxin administration, William H. Park, M.D., 73; popular medical education, Maurice W. Pearson, M.D., 941.; Shattuck Lecture, concerning diabetes incipidus and the polyurias of hypophysial origin, Harvey Cushing, M.D., 901.

Anatomic Explanation of many of the cases of weak or painful backs, as well as of many of the leg paralyses, Joel E. Goldthwait, M.D., 128.

Aneurysms, bilateral subclavian, Howard A. Lothrop, A.M., M.D., 535.

Antitoxin Administration, William H. Park, M.D., 73.

Appendicitis, acute angulation of the terminal ileum as a cause of intestinal obstruction in certain cases of, David Cheever, M.D., 719.

Argument for the large State Insane Hospital, Sir Thomas Clouston, M.D., 297.

Artificially Dried Casein.—Preliminary investigation, Henry I. Bowditch, M.D., 722.

Artificial Pneumothorax, seventeen cases of pulmonary tuberculosis treated by, Harry Lee Barnes, M.D., and Frank Taylor Fulton, M.D., 917.

Autotherapy in acute articular rheumatism, Charles H. Duncan, M.D., 350

Bacillus Coli, A case of empyema due to, Arthur L. Grover, M.D., 786.

Bacterial Metabolism, the relation of, to internal medicine, Arthur I. Kendall, Ph.D., 825.

Beriberi, Infantile, in the Philippines, Donald Gregg, M.D., 676.

Bilateral Subclavian Aneurysms, Howard A. Lothrop, A.M., M.D., 535.

Binasal Hemianopsia, so-called, in brain tumor, Walter B. Lancaster, M.D., 878.

Bladder, the early recognition of tumors of, Arthur L. Chute, M.D., 302; observations on recent cases of bladder tumors at the Massachusetts General Hospital, with special reference to operative technic, R. F. O'Neil, M.D., 305.

Blood Cyst, a case of, of the chest wall, Wm. Pearce Coues, M.D., 686; vessels, progress in the surgery of, J. C. Hubbard, M.D., 242.

Bone Plates, Lane, seventy-six operations in which, were used, Willard Bartlett, A.M., M.D., 149.

Book Reviews. Charlotte A. Aikens, clinical studies for nurses, 771; W. Easterly Ashton, the practice of gynecology, 434; John Aulde, the chemic problem in nutrition, 26; W. Bateson, Mendel's principles of heredity, 928; Hugh Wansey Bayly, the clinical pathology of syphilis and parasyphilis, and its value for diagnosis and controlling treatment, 172; Amanda K. Beck, a reference hand-book for nurses, 808; Arnold Chaplin, the illness and death of Napoleon Bonaparte, 624; Sir. W. Watson Cheyne, and F. F. Burghard, a manual of surgical treatment, 547; W. T. Councilman, pathology, a manual for teachers and students, 357; F. G. Crookshank, flatulence and shock, 698; Hugh Emmett Culbertson, medical men and the law, 513; A. Francis Dixon, manual of human osteology, 26; the collected works of Christian Fenger, 770; Austin Flint, a manual of auscultation and percussion, 357; Austin Freeman, the vanishing man, 435; Sigmund Freud, selected papers of hysteria and other psychoneuroses, 26; W. M. Graham, report on blackwater fever in Southern Nigeria, 659; Hobart Amory Hare, a text-book of practical therapeutics, 398; Louis Hamman and Samuel Waldman, tuberculin in diagnosis and treatment, 434; G. Montague Hartshorn, the care and treatment of European children in the tropics, 771; William B. Herms, malaria: cause and control, 928; W. P. Herringham, kidney diseases, 398; Arthur E. Hertzler, surgical operations with local anesthesia, 889; Louis J. Hirschman, handbook of diseases of the rectum, 735; Albert R. Hooker, chloride of lime in sanitation, 735; John Allen Hornsby, the modern hospital, 624; Francis Howard Humphries, electro-therapeutics for practitioners, 587; the international medical annual, 889; George Thomas Jackson, and Charles Wood McMurtrie, a treatise on diseases of the hair, 319; W. Allan Jamieson, the care of the skin in health, 850; J. C. G. Ledingham, and J. A. Arkwright, the carrier problem in infectious diseases, 698; Alfred Liguret, contribution to the histologic study of the hypophyses during gestation, 771; A. Martin and Ph. Jung, diseases of women, 398; William J. Mayo and Charles H. Mayo, a collection of papers, 809; memorials of the Oswaldo Cruz Institute, 659; Henry H. Morton, genito-urinary diseases and syphilis, 588; Paul Mulzer, The therapy of syphilis, 284; Jesse S. Myer, life and letters of Dr. William Beaumont, 850; Drs. Paul Nitsche and Karl Williams, the history of the prison psychoses, 698; Dr. Noome, studies in endocrinology, 735; the practitioners visiting-list, 587; Helen C. Putnam, school janitors, mothers and health, 850; Benjamin Knox Rachford, diseases of children, 133; Henry O. Reik safeguarding the special senses, 471; second report of the Government Bureau of Microbiology, 771; Victor Robinson, pathfinders in medicine, 547; Dr. A. Rose, Napoleon's campaign in Russia, 624; Mary Swartz Rose, a laboratory handbook for dietetics, 435; E. A. Schafer, experimental physiology, 659; Max Schottellius, 513; W. Simon, a manual of chemistry, 63; Morris Slemons, the prospective mother, 585; Ernest Henry Starling, the principles of human physiology, 133; State Board examination, questions and answers, 26; Lewis A. Stimson, a practical treatise on fractures and dislocations, 471; James J. Walsh, psychotherapy, 319; Ira S. Wile, sex education, 770; Edward Jenner Wood, a treatise on pellagra, 98; D. F. Zinsser, diseases of the mouth, 435.

Brain Tumor. Operation. Autopsy findings, E. D. Bond, M.D., and A. H. Peabody, M.D., 90; on so-called binasal hemianopsia in brain tumor, Walter B. Lancaster, M.D., 878.

Bulbar Paralysis in typhoid fever, R. Fitz, M.D., F. G. Brigham, M.D., and J. J. Minot, M.D., 957.

Burnam's Test, the excretion of formalin in the urine: An inquiry into the accuracy of, George W. Smith, M.D., 713.

Cabot, Arthur Tracy, M.D., memorials to, Henry F. Walcott, M.D., Paul Thorndike, M.D., John B. Hawes, 2d, M.D., 409.

Calculi, Renal and Ureteral, report of 110 cases of, and with ten cases simulating these conditions, with comments, F. S. Watson, M.D., 37.

Cancer, frequency of the transition of ulcer of the stomach into, Julius Friedenwald, M.D., 796.

Carcinoma, an etiological factor in, and its possible influence on treatment, Howard W. Nowell, M.D., 838.

Casein, Artificially Dried, preliminary investigation, Henry I. Bowditch, M.D., 722.

Catheterization, Retrograde, a note on the history of, in ruptures of the urethra, Charles Greene Cumston, M.D., 232.

Cauterization, High Frequency, the value of, in treatment of vesical papillomata, Horace Binney, M.D., 308.

Cesarean Section, the present position of abdominal, in eclampsia, John T. Williams, M.D., 456.

Cholecystitis and Cholelithiasis associated with pregnancy, Robert M. Green, M.D., 679.

Choledochotomy, Transduodenal, J. C. Hubbard, M.D., 723.

Chronic Nephritis, the favorable influence of periods of a protein free diet in, Harry W. Goodall, M.D., 760; unilateral hematuria, in, P. E. Truesdale, M.D., 156.

Chronic Stenosis, the treatment of, of the larynx and trachea, H. L. Lynah, M.D., discussion, Edwin H. Place, M.D., 753.

Clavicle, non-union of the, in a child, Wm. Pearce Coues, M.D., 685.

Common Colds and vaccine therapy, Jessie Weston Fisher, M.D., 834.

Constipation, the dietetic treatment of, L. H. Newburgh, M.D., 757.

Consumptive, see **Tuberculosis.**

Correspondence. Surgical needs of foreign missions, James L. Barton, 147; investigation of the alimentary tract by Roentgen rays, A. L. Benedict, M.D., 147; Henry Jenkins: centenarian, G. Alder Blumer, M.D., 331; the bacteria count bill, George E. Bolling, 370; Lister memorial fund, John Rose Bradford, 635; needs of the Harvard Medical School of China, W. B. Cannon, 712; workmen's compensation, James B. Carroll, 371; polished rice and beriberi, W. P. Chamberlain, M.D., 823; a post-mortem portrait of Charles the First, David Coggin, M.D., 600; early successful attempts at intestinal suture and intestinal resection in animals, 671; the protean aspects of syphilis, William Pearce Coues, M.D., 976; the early recognition of syphilitic infection of the wet nurse, Wm. Pearce Coues, M.D., 447; Robert Fletcher, 1823-1912, Harvey Cushing, M.D., 330; athletics and life, George V. N. Dearborn, M.D., 406; the lure of Germany, "G", 670; shall the medical defense act be repealed? George W. Gay, M.D., 559; memorial to Lord Lister, Arch. Geikie, 635; the Milk Commission of the Norfolk District Medical Society, Robert W. Hastings, M.D., 784; the modern feminine figure in classic times, Philip Coombs Knapp, M.D., 330; early attempts at transfusion, J. J. Mangan, M.D., 183; preparations of Crotalin, Thomas J. Mayo, 331; workmen's compensation, W. H. Merrill, M.D., 371, 447; polished rice vs. unpolished rice, Horace Packard, M.D., 447; physics and metaphysics: a further rejoinder, James J. Putnam, M.D., 106; the radiography and treatment of fractures, John B. Roberts, 824; radium emanation, William Rollins, 332; the nose as an avenue of infection, Edmund D. Spear, M.D., 147; Paris letter, "S", 71; letter from France, "S", 598, 782; two valuable pamphlets of the Boston Association for the Relief and Control of Tuberculosis, S. H. Stone, 183; polished rice, Joseph W. Warren, M.D., 559; the origin of life: a rejoinder, Walter Wesselhoeft, M.D., 106; cancer, Francis H. Williams, M.D., 484.

Coxa Vara: Some observations on this condition with especial reference to the question of spontaneous recovery from this deformity, James Warren Sever, M.D., 495.

Dental and Oral Hygiene, relations of to health, George H. Wright, D.M.D., Herbert W. Adams, M.D., W. J. Gallivan, M.D., Timothy Leary, M.D., Harold DeWitt Cross, D.M.D., 232-236.

Dermatology, report on, John T. Bowen, M.D., 652, abuse of the x-rays in the treatment of skin affections, John T. Bowen, M.D., 682.

Diabetes Insipidus and the polyurias of hypophysial origin, Harvey Cushing, M.D., 901.

Diabetes in Infancy and Childhood, John Lovett Morse, M.D., 530.

Digestivity of the human gastric juice compared to the digestivity of various remedies recommended in disorders of the stomach, George H. Nofer, M.D., 873.

Diphtheria, a note on a circumscribed epidemic of, Herman M. Adler, M.D., 192; treatment of laryngeal stenosis following, D. L. Richardson, M.D., 911; diagnosis and treatment of, Joseph B. Greene, M.A., M.D., 911.

Diverticulitis, Joseph Stanton, M.D., 343.

Ear, Middle, diseases of, and mastoid cells, C. R. C. Borden, M.D., 221.

Eclampsia, the present position of abdominal Cesarean section in, John T. Williams, M.D., 456.

Editorials. Status of Balkan War, 27; the relation of the Bordet-Gengou bacillus to the lesion of pertussis, 28; section for orthopedic surgery in the American Medical Association, 29; appointment of Dr. Alsberg, 29; modern sanitation, 64; refuse disposal in cities, 65; medical lectures for the public, 65; the complete eradication of typhoid fever, 99; the greater healthfulness of rural districts, 99; a municipal tuberculosis sanatorium, 134; practical eugenics, 136; the Balkan situation, 137; the death of Henry the Eighth, 173; new health department or present bureau, 174; the domestic water filter, 175; parental care, 175; Dr. Strong and the Harvard School of tropical medicine, 176; the death of Charles the Second, 206; intratracheal insufflation in anesthesia, 206; diet kitchen, 207; recommendation for change in immigration law, 208; renewal of the Balkan War, 209; the milk situation in Massachusetts, 249; milk grades and Pasteurization, 251; the diagnosis of feeble-mindedness, 252; venereal disease, 253; the Forsyth Dental Infirmary, 254; national Insurance and Workmen's Compensation, 285; hereditary syphilis as a factor in the production of genius, 285; relative merits of the milk bills, 286; Robert Scott and his comrades, 287; Maimonides, 320; the danger of the cold sea bath in arteriosclerosis, 320; Iodine medication of the bladder, 321; pending dental legislation, 357; the maintenance of isolation hospitals, 360; effect of city life on physical development, 361; Dr. Friedmann and the treatment of tuberculosis, 362; American association of medical education, 362; malaria and material welfare, 399; a century of medical science, 400; therapeutic value of war, 400; the case of the midwife, 436; fishes in medicine, 437; the centennial of Dr. David Livingstone, 438; the death of Queen Elizabeth and of King James the First, 472; extermination of the rat, 473; the etiologic organism of poliomyelitis, 474; progress of Dr. Friedmann's demonstrations, 514; the execution of Charles the First, 515; Mental hygiene exhibit and conference, 516; the Glasgow Lister Ward and Museum, 517; the prevention of diseases of occupation, 517; American Academy of Arts and Sciences, 518; sterilization of the unfit, 548; the Phipps psychiatric clinic, 549; Mr. Morgan as a medical benefactor, 550; immigration in 1912, 589; housing reform in Germany, 590; progress of Dr. Friedmann's work, 591; paranoia in the courts, 699; the death-rate among infants, 701; the abuse of habit-forming drugs, 702; promiscuous sanitary dangers, 625; the milk problem in Massachusetts 626; the resignation of Dr. Harvey, 627; a Harvard medical emeritus, 628; lynching and crowd-psychology, 660; the doctor in Plautus, 661; appointment of Dr. Rosenau, 662; typhoid fever in Massachusetts, 736; the expectation of life among the feeble-minded, 738; infant mortality in the State of New York, 739; cancer, 772; the strange case of Kaspar Hauser, 772; Appollo Smintheus and the plague, 773; the discovery of the laryngoscope, 774; hallucinations from flue-gas poisoning, 744; work of committee for public health among women, 810; the Meaney bill, 811; the preventive value of Pasteurization, 812; Madame de Sevigne and her physicians, 851; the common cold, 852; the Binet-Simon tests for mental deficiency, 853; the Springfield Academy of Medicine, 854; annual meeting of the Massachusetts Medical Society, 854; a State health law, 890; three medical meetings, 891; the defeat of two undesirable measures, 892; the end of the Friedmann fallacy, 892; immunization against diphtheria, 893; meeting of the Massachusetts Medical Society, 925; observation on mosquitoes, 930; a remarkable group of nonogenarians, 930; the mortality of female cotton-mill operatives, 960; spiders in medicine, 961; a Russian appreciation of Charles Dickens' knowledge of criminology, 962; some fallacies in medical education, 962.

Empyema, Case of, due to bacillus coli, Arthur L. Grover, M.D., 768.

Epidemic, Circumscribed, of Diphtheria, Herman M. Adler, M.D., 192.

Eye Diseases, follow-up work as an element of effective treatment in an out-patient clinic for, Edward Hartshorn, M.D., and Michael M. Davis, Jr., 538.

Focal Form, Francis Lowell Burnett, M.D., 574.

Feeble-Mindedness among immigrants, J. G. Wilson, M.D., 226.

Focal Suppuration, Chronic, of the head with general symptoms, especially in adults, Francis Patten Emerson, M.D., 85.

Follow-up Work as an element of effective treatment in an out-patient clinic for eye diseases, Edward Hartshorn, M.D., and Michael M. Davis, Jr., Ph.D., 538.

Foot, fracture of the fifth metatarsal bone by inversion of, Wm. Pearce Coues, M.D., 90.

Foot Strain, the prevention of, Robert B. Osgood, M.D., 380.

Formalin, the excretion of, in the urine; an inquiry into the accuracy of Burnham's test, George W. Smith, M.D., 713; some factors which influence the excretion of formalin in the urine of children and infants taking hexamethylenamin (urotropin), Fritz B. Talbot, M.D., and Warren R. Sisson, M.D., 485.

Forsyth Dental Infirmary, Timothy Leary, M.D., 235; a word on the scientific, economic and social program of Harold DeWitt Cross, D.M.D., 238.

Fracture of the fifth metatarsal bone by inversion of the foot, William Pearce Coues, M.D., 90.

Free Dispensary, some functions of, W. S. Thayer, M.D., 185.

Frequency of the transition of ulcer of the stomach into cancer, Julius Friedenwald, M.D., 796.

Gastric Juice, Human, digestivity of, compared to the digestivity of various remedies recommended in disorders of the stomach, George H. Nofer, M.D., 873.

Gastric Ulcer, tuberculosis of mesenteric glands simulating, Maurice Vejux Tyrode, M.D., 351.

Gastro-Mesenteric Ileus, a case of, C. A. Porter, M.D., and G. W. Morse, M.D., 506.

Graduate Medical Instruction, the problem of, Horace D. Arnold, M.D., 265.

Gynecology, progress in, Stephen Rushmore, M.D., 687.

Hand Lesions following injuries of the upper extremities, Hermann Bucholz, M.D., 561.

Hay Fever, the etiology of, Algernon Coolidge, M.D., 503; the etiology of, Theobald Smith, M.D., 504.

Head Injuries of the new-born, DeWitt G. Wilcox, M.D., 568.

Hemangioendothelioma of the temporal bone, Frederick L. Jack, M.D., pathological report, Calvin B. Faunce, Jr., M.D., 278.

Hemorrhage, Intraventricular, of the new-born, Alexander C. Eastman, M.D., 165.

Hexamethylenamin, some factors which influence the excretion of formalin in the urine of children and infants taking, Fritz B. Talbot, M.D., and Warren R. Sisson, M.D., 485.

Hydrotherapy, the neglect of, in America, Joseph H. Pratt, M.D., 842.

Hymenolepis, a case of infection with, (taenia) nana, the dwarf tapeworm, Isaac Gerber, M.D., 346.

Hypospadias, the treatment of, Howard A. Lothrop, A.M., M.D., 48.

Hysteria, the views of Plato and Freud on the etiology and treatment of, a comparison and critical study, J. W. Courtney, M.D., 649.

Ileum, Terminal, acute angulation of, as a cause of intestinal obstruction in certain cases of acute appendicitis, David Cheever, M.D., 719.

Ileus, a case of gastro-mesenteric, C. A. Porter, M.D., and G. W. Morse, M.D., 506; spastic paralytic ileus, Robert M. Green, M.D., Foster S. Kellogg, M.D., and Peter L. Harvie, M.D., 580.

Infantile Beriberi in the Philippines, Donald Gregg, M.D., 676.

Infantile Malnutrition, clinical studies on feeding in, Charles Hunter Dunn, M.D., 161.

Infections of the upper urinary tract in infancy and childhood, Robert M. Green, M.D., 645.

Insane, self-mutilation by the, J. M. Keniston, M.D., 571.

Insane Hospital, large State, an argument for, Sir Thomas Clouston, M.D., 297.

Internal Medicine, progress in, Francis W. Palfrey, M.D., 801; relation of, to bacterial metabolism, Arthur I. Kendall, 825.

Intestinal Obstruction in acute appendicitis, acute angulation of the terminal ileum as a cause of, David Cheever, M.D., 719.

Intraventricular Hemorrhage of the new-born, Alexander C. Eastman, M.D., 165.

Intussusception, progress in the diagnosis and treatment of, W. E. Ladd, M.D., 542.

Jackson Membrane, Harold W. Baker, M.D., 766.

Joint Disease, a collection of facts, ideas and theories relating to the diverse elements that contribute to success in treatment of, H. W. Marshall, M.D., 333, 385, 425; the diagnosis of the tubercular character of joint disease, E. G. Brackett, M.D., 673.

Labor, conduct of, without vaginal examinations, Charles M. Green, M.D., 525.

Labyrinthitis, serous and suppurative,—differential diagnosis, Irving W. Voorhees, M.S., M.D., 716.

Lane Bone Plates, a consideration of seventy-six operations in which, were used, Willard Bartlett, A.M., M.D., 149.

Laryngeal Stenosis, treatment of, following diphtheria, D. L. Richardson, M.D., 749.

Larynx and Trachea, treatment of chronic stenosis of, H. L. Lynah, M.D., discussion, Edwin H. Place, M.D., 753.

Leucocyte Count, the diagnostic significance of the, in osteomyelitis and tuberculosis of the bones in childhood, Eben W. Fiske, A.M., M.D., 606.

Lipomatosis, suffuse sub-dural, of the spinal cord in an infant, S. B. Wolbach, M.D., and J. A. P. Millett, A.B., 681.

Malnutrition, clinical studies on feeding in infantile, Charles Hunter Dunn, M.D., 161.

"Marine Plasma," a case of seemingly hopeless peritonitis apparently cured by, Horace Packard, M.D., 544.

Massachusetts State Board of Health, work of, in investigation of paralysis, Robert W. Lovett, M.D., 109.

Medical Education and the Harvard Medical School, E. H. Bradford, M.D., 261; popular, Maurice W. Pearson, M.D., 941.

Memorial to Arthur Tracy Cabot, M.D., Henry P. Walcott, M.D., Paul Thorndike, M.D., John B. Hawes, 2d, M.D., 409.

Mental Diseases, report of, Henry R. Stedman, M.D., 310, 352.

Mental Symptoms associated with renal insufficiency, Mary Lawson Neff, M.D., 272.

Mesenteric Gland, tuberculosis of, simulating gastric ulcer, Maurice Vejux Tyrode, M.D., 351.

Midwife, registered, a necessity, Edmond F. Cody, M.D., 416; midwife in Massachusetts, Her anomalous position, James Lincoln Huntington, M.D., 418.

Milk Supply, aspects of the: I. Some features of the milk situation, James O. Jordan, 609; II. The production of certified milk, J. A. Foord, 612; III. The Medical Milk Commission of Boston, Robert L. De Normandie, M.D., 615; IV. Discussion of papers of Professors Jordan and Foord and of Dr. DeNormandie, 617; protection of milk, E. M. Buckingham, M.D., 785.

Milk, Boiled, in infant feeding, John Lovett Morse, M.D., 726.

Miscellany. Centennial memorial of Dr. James Marion Sims, 146; modern ideals for boards of health, 146; committee report of the American Sanatorium Association, 146; the self-support of tuberculates, 182; Babylonian mythical etiology of toothache, 182; ancient French food laws 182; the Montenegrins and medicine, 183; morbidity reports, United States Public Health Service, Washington, D. C., January 27, 1913, 218; the fluoroscope method, January 29, 1913, 218; diabetes mellitus, 219; meeting of the council of the Massachusetts Medical Society, February 5, 1913, 293; international memorials to Lord Lister, 295; Avicenna and his work, 295; Charles Dickens' aid to the science of pediatrics, 329; antiquity of vaccination, 329; report on tuberculosis, 370; instructor for Miraj Medical School, 372; Dr. Herbert B. Howard's retirement from Board of Insanity, 598; Nurse wanted for South India, 636; President Lowell's annual report, 669; resolutions on the death of Dr. Alexander, 670; resolutions passed by the council and adopted by the New York Academy of Medicine in memory of Algernon T. Bristow, M.D., 670; a case history from French military surgery, 710; the encouragement of medical research, 711; life history of stomoxys calcitrans, 711; United States Civil Service Examination, 748; Changes in the Navy Medical Corps, 748; causes of death in the United States, 781; reunion class of 1883, Harvard Medical School, 784; American College of Surgeons, 821; Dr. Friedmann's vaccine, 822; massacre of Chinese lepers, 823; a Spanish surgical romance, 823; notice of the death of Amos Bancroft, 861; a court physician under the Third Empire, 863; ophthalmia neonatorum in Glasgow, 864; action of radium on plants, 899; a royal dentist, 899; Massachusetts Medical Society, 937; four human embryos, 969; practical aspects of eugenics, 970.

Mouth Breathing, persistent following adenoidectomies, Irving Sobotky, M.D., 230.

Nature of the Feeling of Unreality, J. W. Courtney, M.D., 198.

Nephritis, Chronic, the favorable influence of periods of a protein free diet in, Harry W. Goodall, M.D., 760; unilateral hematuria in, P. E. Truesdale, M.D., 156.

New-born, head injuries to, DeWitt G. Wilcox, M.D., 568; Intraventricular hemorrhage of, Alexander C. Eastman, M.D., 165.

New Instruments. A new ether blower, S. J. Beach, M.D., 202; a convenient anatomic device, Robert M. Green, M.D., 546; ball-valve apparatus for the administration of salvarsan, L. L. Albert, M.D., 392; appendix excisor, J. Emmons Briggs, M.D., 847.

Obituaries. John Shaw Billings, M.D., LL.D., D.C.D., 558; Algernon T. Bristow, M.D., 559; Francis Henry Cohan, M.D., 635; Earl of Crawford, 260; Edward Curtis, M.D., 145; William Howship Dickinson, M.D., F.R.C.P., 259; Right Hon. Lord Balthazar Walter Foster, P.C., LL.D., D.C.L., M.D., F.R.C.P., Baron Ilkeston, 369; George Alexander Gibson, M.D., D.Sc., LL.D., 259; Francis Parker Kinnicutt, M.D., 781; Julian Augustus Mead, M.D., 559; Charles Sturtevant, M.D., 181; Ira Van Gieson, M.D., 634; John Warren Willis, M.D., 524; Edward Adrian Wilson, B.A., M.B., Cantab., 446; L. Forbes Winslow, M.D., 969.

Obstetrics, the conduct of labor without vaginal examination, Charles M. Green, M.D., 525; an unusual obstetrical history, J. C. Hubbard, M.D., 459; the present position of abdominal Cesarean section in eclampsia, John T. Williams, M.D., 456; the conservative treatment of toxemia of pregnancy, with convulsions, Charles M. Green, M.D., 376.

Ophthalmia Neonatorum, administration standards, Henry Copley Greene, 275; the control of ophthalmia neonatorum in Massachusetts with suggestions for the improvement of existing conditions, Frederick E. Cheney, M.D., 117.

Ophthalmologists, a suggestion for improving the training of, Walter B. Lancaster, M.D., 576.

Oral Prophylaxis, Herbert W. Adams, M.D., 233.

Orthopedic Surgery, report of progress in, Robert B. Osgood, M.D.; Robert Soutter, M.D.; Hermann Buchols, M.D.; Murray S. Danforth, M.D.; H. C Low, M.D., 461.

Osteomyelitis, Localized, of the long bones, Channing C. Simmons, M.D., 637; diagnostic significance of the leucocyte count in, of the bones in childhood, Eben W. Fiske, A.M., M.D., 606; tuberculous osteomyelitis of the digits, Robert M. Green, M.D., 797.

Ovaries, abnormal peritoneal sacculation of, Edward Reynolds, M.D., 239.

Paralysis, General, a statistical study of remissions in, Harlan L. Paine, 684; the work of the Massachusetts State Board of Health in the investigation of, Robert W. Lovett, M.D., 109; leg, an anatomical explanation of, Joel E. Goldthwait, M.D.; bulbar, in typhoid fever, R. Fitz, M.D.; F. G. Brigham, M.D.; and J. J. Minot, M.D., 957.

Pathology, progress in, S. B. Wolbach, M.D., 618; of typhoidal spine, Mark H. Rogers, M.D., 348.

Pediatrics, suffuse sub-dural lipomatosis of the spinal cord in an infant, S. B. Wolosch, M.D., and J. A. P. Millett, A.B., 681; intraventricular hemorrhage of the new-born, Alexander C. Eastman, M.D., 165; infections of the upper urinary tract in infancy and childhood, Robert M. Green, M.D., 645; report on, Thomas Morgan Rotch, M.D., and Charles Hunter Dunn, M.D., 92; report on progress in, boiled milk in infant feeding, John Lovett Morse, A.M., M.D., 726; social, Ira S. Wile, M.S., M.D., 885; diabetes in infancy and childhood, John Lovett Morse, M.D., 530; head injuries of the new-born, DeWitt G. Wilcox, M.D., 568; the diagnostic significance of the leucocyte count in osteomyelitis and tuberculosis of the bones in childhood, Eben W. Fiske, M.D. 606; clinical studies on feeding in infantile malnutrition, Charles Hunter Dunn, M.D., 161.

Pellagra, with a report of cases, Elisha H. Cohoon, M.D., and Frederick J. Farnell, M.D., 50; the experimental production of lesions resembling, Herman M. Adler, M.D., 454; a case of, Warren H. Sherman, M.D., 50

Perineal Fistulae, the closure of obstinate, following operation for stricture of urethra. The prevention of these fistulae, Howard A. Lothrop, M.D., 188.

Peritonitis, a case of seemingly hopeless, apparently cured by hypodermic injections of "marine plasma," Horace Packard, M.D., 544.

Phylacogens, do results justify the use of? Carleton R. Metcalf, M.D., 951.

Pituitary Extract, report on the use of, (pituitrin) in surgical shock, Charles A. Hill, M.D., 720.

Pneumonia, cerebral complications in, Charles F. Withington, M.D., 945.

Pregnancy, Tubal, transfusion in the treatment of ruptured, Robert M. Green, M.D., 270; cholecystitis and cholelithiasis associated with, Robert M. Green, M.D., 679.

Progress. Report on dermatology, John T. Bowen, M.D., 652; report on progress in genito-urinary surgery, F. S. Watson, M.D., and Paul Thorndike, M.D.; 16; in gynecology, Stephen Rushmore, M.D., 687; report of mental diseases, Henry R. Stedman, 310, 252; report of progess in orthopedic surgery, Robert B. Osgood, M.D.; Robert Soutter, M.D.; Hermann Buchols, M.D., Murray S. Danforth, M.D.; H. C. Low, M.D., 461; in pathology for 1912, S. B. Wolbach, M.D., 618; report on pediatrics, Thomas Morgan Rotch, M.D., and Charles Hunter Dunn, M.D., 92; report on progress in pediatrics, boiled milk in infant feeding, John Lovett Morse, A.M. M.D., 726; in the surgery of blood vessels, J. C. Hubbard, M.D., 242.

Psychology and the physiological sciences, Robert MacDougall, Ph.D., 865.

Public Health and Tuberculosis in South Africa, James A. Honeij, M.D., 195.

Pulmonary Tuberculosis see **Tuberculosis.**

Recurrent Variola, Edmond F. Cody, M.D., 726.

Renal Insufficiency, mental symptoms associated with, Mary Lawson Neff, M.D., 272.

Renal Tumors, the symptomatology of, a study of seventy-four cases from the Massachusetts General Hospital, J. Dellinger Barney, M.D., 300.

Rheumatism, autotherapy in acute articular, Charles H. Duncan, M.D., 350.

Ruptures of the Urethra, a note on the history of retrograde catheterization in, Charles Greene Cumston, M.D., 232.

Sacrifice to Asklepios: A mime of Herondas, Robert M. Green, A.B., M.D., 46.

School Inspection and Dental Caries, W. J. Gallivan, M.D., 234.

Shattuck Lecture, concerning diabetes insipidus and the polyurias of hypophysial origin, Harvey Cushing, M.D., 901.

Self-Mutilation by the insane, J. M. Keniston, M.D., 571.

Shock, a review of the theories and experimental data to date, Edward H. Risley, M.D., 112; report on the use of pituitary extract in surgical shock, Charles A. Hill, M.D., 720.

Skull, diagnostic evidence obtained by x-rays from lateral aspect of, Percy Brown, M.D., 882.

Society Reports. American Climatological Association, 354, 393; American Gastro-Enterological Association, 657, 693; American Neurological Association, 94, 131, 169; American Orthopedic Association, 202, 247, 280; American Psychopathological Association, 731; American Society of Tropical Medicine, 430, 467; American Surgical Association, 21, 56; American Urological Association, Fall meeting of the New England branch in conjunction with the Hartford Medical Society, 314; the Boston Society of Medical Sciences, 319; College of Physicians of Philadelphia, 623, 806; Section of General Medicine of the College of Physicians of Philadelphia, 586; Essex North District Medical Society, 749; Essex South District Medical Society, 470; Hampden District Medical Society, 770; New England Pediatric Society, 168, 512, 691, 729, 848; Norfolk District Medical Society, 692, 730; Philadelphia County Medical Society, 510, 547, 656, 769, 888; South Boston Medical Society, 808.

Spastic Paralytic Ileus, Robert M. Green, M.D.; Foster S. Kellogg, M.D.; and Peter L. Harvie, M.D., 580.

Spinal Cord, suffuse sub-dural lipomatosis of the, in an infant, S. B. Wolbach, M.D., and J. A. P. Millett, A.B., 681.

Stenosis, Chronic, treatment of, of the larynx and trachea, H. L. Lynah, M.D., discussion, Edwin H. Place, M.D., 753.

Stomach, Ulcer of, frequency of the transition of, into cancer, Julius Friedenwald, M.D., 796.

Speech Disorders, studies in, Walter B. Swift, M.D., 160.

Supervision in Medicine, a method of, William T. Carolin, M.D., 921.

Surgery of Blood-Vessels, progress in, J. C. Hubbard, M.D., 242.

Syphilis and the surgical out-patient, William Pearce Coues, M.D., 508.

"Syphilitic Periostitis," a case of, cured by salicylates, Edward H. Goodman, M.D., 927.

Tape Worm, dwarf, a case of infection with, Isaac Gerber, M.D., 346.

Teeth, their relation to the body, George H. Wright, D.M.D., 232; oral prophylaxis, Herbert W. Adams, M.D., 233; school inspection and dental caries, W. J. Gallivan, M.D., 234.

Tic Douloureaux, a method of dealing with the peripheral branches of the fifth cranial nerve in, Benjamin Brabson Cates, M.D., 384.

Toxicity of Bile with the report of an unusual case, W. E. Ladd, M.D., 166.

Toxemia of Pregnancy, the conservation treatment of, with convulsions, Charles M. Green, M.D., 376.

Transduodenal Choledochotomy, J. C. Hubbard, M.D., 723.

Tranfusion in the treatment of ruptured tubal pregnancy, Robert M. Green, M.D., 270.

Trichinosis, Thomas L. Leen, M.D., 601.

Tubal Pregnancy, tranfusion in the treatment of, Robert M. Green, M.D., 270.

Tuberculosis. The diagnostic significance of the leucocyte count in, of the bones in childhood, Eben W. Fiske, A.M., M.D., 606; seasonal variation of the symptomatology of pulmonary tuberculosis, N. B. Burns, M.D., 421; conference on efficient boards of health, Robert N. Hoyt, 789; the control of the careless and incorrigible consumptive, Mark W. Richardson, M.D., 787; control of the careless and incorrigible consumptive, C. T. Callahan, Esq., 794; open-window schoolrooms, Allen G. Rice, M.D., 791; tuberculosis of mesenteric glands simulating gastric ulcer, Maurice Vejux Tyrode, M.D., 351; tuberculosis and public health in South Africa, James A. Honeij, M.D., 195; diagnosis of the tubercular character of joint disease, E. G. Brackett, M.D., 673; some results of dispensary work in the control of tuberculosis, Cleaveland Floyd, M.D., 43; tuberculous osteomyelitis of the digits, Robert M. Green, M.D., 797; tuberculosis of the epididymis; its effect upon testicle and prostate, J. Dellinger Barney, M.D., 923; a report of seventeen cases of pulmonary tuberculosis treated by artificial pneumothorax, Harry Lee Barnes, M.D., and Frank Taylor Fulton, M.D., 917; the relation of accident and injury to pulmonary tuberculosis from a medico-legal point of view, John B. Hawes, 2d, M.D., and Arthur Drinkwater, Attorney, 83; a report of two cases of tuberculous mesenteric glands of the cecal region, Charles Greene Cumston, M.D., 201.

Tumor, brain, operation, autopsy findings, E. D. Bond, M.D. and A. H. Peabody, M.D., 90; on so-called binasal hemianopsia in brain tumor, Walter B. Lancaster, M.D., 878; of the bladder, early recognition of, Arthur L. Chute, M.D., 302; observations in recent cases of, at the Massachusetts General Hospital, R. F. O'Neil, M.D., 305; renal, symptomatology of, J. Dellinger Barney, M.D., 300.

Typhoid Spine, pathology of, Mark H. Rogers, M.D., 348.

Typhoid Vaccination, J. Herbert Young, M.D., 393.

Typhus Fever (Brill's disease) at the Massachusetts General Hospital in ten years (Oct. 1, 1902, to Oct. 1, 1912), Roger I. Lee, M.D., 122.

Ulcer of the Stomach, frequency of the transition of, into cancer, Julius Friedenwald, M.D., 796.

Unilateral Hematuria in chronic nephritis, P. E. Truesdale, M.D., 156.

Unreality, nature of the feeling, J. W. Courtney, M.D., 198.

Ureteral Obstruction, Benjamin Tenney, M.D., 373.

Vaccination, Typhoid, J. Herbert Young, M.D., 393.

Vaccine Therapy, common colds and, Jessie Weston Fisher, M.D., 834.

Vaginal Hernia, an operation for the cure of, Howard A. Lothrop, A.M., M.D., 578.

Variola, Recurrent, Edmond F. Cody, M.D., 726.

Venereal Disease, the importance of, John H. Cunningham, M.D., 77.

Vesical Papillomata, the value of high frequency cauterization in the treatment of, Horace Binney, M.D., 308.

Wassermann, results of, in two hundred consecutive admissions to the Danvers State Hospital, Harlan L. Paine, M.D., 501.

Weak and Painful Backs, anatomical explanation of, Joel E. Goldthwait, M.D., 128.

X-rays, the abuse of, in the treatment of skin affections, John T. Bowen, M.D., 682; the diagnostic evidence obtained by x-rays from the lateral aspect of the skull, with especial reference to the base and its adnexa, Percy Brown, M.D., 882.

X-ray examination, a few important points in, of the digestive tract, Franklin W. White, M.D., 449.

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Original Articles.

ORTHOPEDIC PRINCIPLES FOR USE IN GENERAL PRACTICE.*

BY JAMES WARREN SEVER, M.D., BOSTON.

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Member American Orthopedic Association.

It was with great pleasure that I accepted your President's invitation to speak to you tonight, for the reason that I felt that there were many things pertaining to orthopedics in which you should be interested. As I have thought the matter over it has seemed to me that there are many points in orthopedics which touch the work of a man in general practice, and which would be well for me to emphasize. I am going, therefore, to speak of these junction points, and try to give you my ideas as to the way in which they should meet. I have done this on purpose, for I felt that this way of approaching these subjects would be of more real and practical interest and value to you than for me to take some one subject in which I was especially interested from a research point of view and work it off on you as a dress rehearsal for myself.

Before going further, however, it might be well for me to define "orthopedics," for I find that many people, even physicians, are ignorant of the real meaning of the term, and believe an orthopedist to be one and the same with an osteopath or a chiropodist. Now "orthopedic" comes from two Greek words meaning "straight" and "child," and the compound word means, freely translated, "to make the child straight." This is what we have set ourselves to do, and from this ideal the work has spread to include the larger field of adult bone and joint work with its many difficulties and problems. A great deal of our work is laborious and long drawn out, and many a general surgeon and practitioner of medicine neither cares for nor is fitted temperamentally to do it. He prefers, if he is a surgeon, to "explore" or "remove the appendix," sit the patient up in a few days, and have the case home in a week well, and I know a medical man would much rather take temperatures, pulses, differentiate râles, and talk wisely about pre-tubercular conditions, than apply plaster jackets regularly every two or three months over a period of two or three years in scoliosis cases. We would get our cases well quickly also, but we unfortunately cannot do so, for the very pathology of the diseases we meet, involving as they do bones and joints, precludes such roseate possibilities. Two or three years is often our best prognosis in the severer affections.

Having thus meandered, I will now return to the subject.

I have purposely and carefully selected the following conditions, all of which are usually seen first by the family physician, as is indeed true of all other orthopedic affections, and either treated by him for a longer or shorter period, and then referred to a hospital or a consultant. I will first take up the congenital deformities which are common, and then go on to the acquired ones.

* Read by invitation before the Waltham Medical Club, Waltham, Mass., Nov. 14, 1912.

CONGENITAL CLUB FEET.

Now you are all familiar with congenital club feet, and it may seem strange to you that I should refer to apparently so simple and well known a condition. But when I tell you that a club foot improperly treated is one of the most difficult and lasting problems we have to meet it will not seem so strange that I wish to emphasize certain points in the treatment.

Congenital club feet are the result of one of three conditions, namely, (1) embryonic, (2) foetal, and (3) true congenital or inherited. The first condition is due to some defect in the laying down of the three embryonic layers, namely, the epiblast, mesoblast and hypoblast, the second probably mechanical from some intrauterine pressure, and the third from some true inherited tendency. The first may be recognized by some other congenital defect such as webbed fingers, club hands, etc., the second by the existence of club feet alone, and the third by the family history. The treatment is always the same.

Club feet can be absolutely cured and normal feet obtained if the child is given adequate treatment early enough. By that I mean within the first eight weeks of its life. This can be done without operation. Do not tell parents to wait until the child is one, two or three years old before having anything done, but tell them to start treatment at once. Time lost at the start can never be regained, and the earlier treatment is begun the more normal the foot the patient will have later in life. This I know from long experience with many club feet. At the Children's Hospital the earlier we get a case the better we like it. These cases have a plaster cast applied without ether in the following way, and it is renewed every two weeks until the cure is complete. The leg is wound with sheet wadding, and a narrow plaster bandage is applied around the base of the toes. A similar bandage is applied above the flexed knee. When these have set more bandages are applied, being carried from the upper one downward and outward about the one at the base of the toes and up the outer side of the leg again to the starting point, the foot meanwhile being held in as much of a corrected position as possible. By this means the foot is held in a sling, which on account of its method of application tends to put the foot in an abducted, everted and dorsally flexed position. The bandages are then covered in by more plasters and allowed to harden. The knee is flexed to prevent the cast from twisting on the leg, which would allow the foot to go back to its former position. Too much padding should not be

used, for the foot will slip inside of it. The circulation should be most carefully watched, and it is often advisable to bivalve the plaster cast before allowing the child to go home. The parents should be instructed to watch the color of the toes and note any undue swelling, and should report for observation frequently. By applying these casts every two weeks the most severe deformities can be over corrected, and by over correction only can any club foot be cured. Over correction as applied to a club foot means a foot well everted, abducted, and capable of full dorsal flexion. Later, when the over correction is complete, massage, a light brace for six months to a year to hold the over correction, and constant use of the foot in weight bearing, if the child is old enough to walk, are the measures indicated.

Older children with club feet, which may or may not have been treated, usually have to undergo bone operations and tenotomies, which are at the best mutilating, and rarely give as good a subsequent result, and the existence of the condition is but a reflection on the medical men for their failure to educate the families under their care to the necessity for early and immediate procedures.

One other congenital condition which causes club foot is that known as spina bifida occulta. This is a condition due to a faulty closure of the mesoblastic layer of the embryo, resulting in a spinal cleft, covered by skin and hair, and without the presence of a tumor, as seen in cases of spina bifida.

Such cases are not very rare, and any child with a single club foot should have its spinal column most carefully examined. The club foot in these cases is due not to mechanical causes, but to faulty innervation. These cases are often seen in consultation on account of the club foot, or even an undeveloped leg, and the stripping of the child and a careful examination of the back for the presence of a tuft of hair or a cleft in the spinous processes will alone disclose the real cause of the difficulty. The deformity often can be treated as other club feet, but on account of the poor nerve supply great care must be used to prevent sloughs. Other deformities, such as dislocation of the hip, frequently coexists in these cases.

WRY NECK.

The next common congenital deformity is wry neck or torticollis. This is not at all infrequent, and is a condition met with in all degrees. The cause has been thought to be intrauterine pressure, which, holding the foetal head in the position of deformity, causes a lack of proper blood supply from the thyroid arteries to the sternal and clavicular heads of the sterno-cleido mastoid muscle, which results in a hyaline degeneration of these portions of the muscle analagous to the condition of muscle seen in the ischaemic paralysis of Volkmann. This in turn leads to a contraction or shortening of greater or less extent of that muscle, and results in the child's head being tipped to one side and the chin rotated to the other. Some men believe that the cause may be found to be the result of an organized hematoma in the muscle body due to partial rupture or injury at birth from trauma or the use of forceps. This question is, however, open to discussion. Other conditions not due to a true contraction of the sterno-cleido mastoid muscle may cause wry neck, such as cervical adenitis, infectious arthritis of the cervical spine, congenital defects of the spine, which, however, will not be considered here. The contraction of the muscle can always be felt, and generally seen, provided an attempt is made to put the head straight or to tip it in the opposite direction of the deformity, when the muscle stands out like a tight cord, extending from the sternal notch to the mastoid.

When the contraction is not marked and the child is young, gradual and daily massage and stretching by trying to put the head into the opposite position will often be sufficient to establish a cure. This treatment is of no avail, however, unless faithfully and carefully carried out with adequate force. Later, when the child is older, say five to ten years of age, it is well to divide the two heads of the muscle by open incision at their origin on the clavicle. Tenotomy has been practiced, but is neither safe nor sufficient. After division of the muscle it is necessary to put on a plaster cast including the head, shoulders and upper chest, which holds the head in exactly the extreme opposite position of the deformity. That is, for a left wry neck before operation the left mastoid would be held down nearer to the left shoulder than the right, and the chin would be rotated to the right shoulder. After operation the right mastoid process should be as near the right shoulder as possible, with the chin pointing towards the left. These casts should be worn about two or three months, depending on the age of the case and the degree of vertebral deformity existing in the cervical spine as shown by x-ray. There is always present some facial asymmetry, which, if the case is treated early enough, practically always clears up so as not to be noticeable. The deformity if left long untreated leads to marked facial asymmetry, change in the axis of the eyes, cervical and dorsal scoliosis, and it is often a question in adult life whether it is better or not to leave it alone provided the patient does not suffer, for he will have considerable readjusting to do following any operative procedure. After the cast is removed a light brace may be worn for several months to hold the head over corrected, meanwhile using massage and exercises for the neck muscles.

Next we have to consider the acquired deformities, and I shall first speak of infantile paralysis, which by its prevalence in this community of late years has left with us so many cripples. Infantile paralysis has been before us all so much of late in an etiological and patho-

logical aspect that I shall not touch on these points, but will merely point out the essentials of what might be called the first aid treatment.

It occurs most frequently in children between the ages of two and three years, and the early symptoms are very varied. The most common ones, however, are fever, tenderness over the affected parts, vomiting, constipation, and at times retraction of the head. All these symptoms may vary. Often the parents tell me that the child went to bed all right, but complained of feeling tired, and woke up paralyzed.

The paralysis may make its appearance at once, and in the majority of cases usually appears during the first four days. The parts involved are as a rule one or both legs, a leg and an arm, both arms and both legs, and the back muscles of the trunk. It may be stated here that the character and severity of the onset and the distribution of the paralysis give no indication as to the ultimate prognosis. Cases apparently severely crippled may make a complete recovery, and it is a fact that about 15% do so recover. The cases, however, which are going to regain complete control of their musculature do so generally within a period of three months, although in many cases which do not make a complete recovery there is often a slow and gradual improvement in the muscle tone over a period of years.

The diagnosis of these cases is usually easy *after* the onset of the paralysis, and there are no positive signs at present by which one can make a diagnosis before the onset of the paralysis. Sudden onset, motor paralysis, absence of reflexes, cold extremities, tenderness or pain, no loss of sensation, and later muscle atrophy, mean but one thing, namely, infantile paralysis.

Having an acute case of this kind, the question is what to do? First of all, insist on absolute rest and quiet and free catharsis. Have the child on a hard pillow or a Bradford frame. Next, following the acute period, it is of the utmost importance to prevent stretching of the paralyzed muscles, and if the legs are involved it is generally wise to put them in plaster casts or troughs, keeping the feet and legs in the normal and proper relations. By doing this, subsequent contractions and deformities are prevented. If the paralyzed parts are cold, wrap them in cotton, but be sure that all pressure from bed clothes and dragging from bad position, which cause an over-stretching of the paralyzed muscles, are prevented. Massage and electricity are not to be used during this stage—in fact electricity rarely does good in any stage and its use has largely been given up.

Following the subsidence of the acute attack the child should be kept in bed for several weeks, with the paralyzed parts protected as suggested, and the massage should be begun, but should be most lightly applied and used. Then should come the fitting of braces if necessary and such apparatus as is needed to make getting about possible, together with the prevention of deformities. During this period massage, muscle training and operative procedures are indicated. It is not wise to operate within two years of an attack, nor on too young a child, except possibly to do a tenotomy for a contraction. Tendon transplantation and the insertion of silk ligaments for the correction or prevention of deformities, and the removal of bones such as astragalectomy for flail foot, or arthrodesis of joints, are procedures which are best done later in life, that is, in the second decade, and should be planned most carefully after a thorough study of the needs of the individual case.

This is but a sketch of what I could say to you on this most interesting subject, but I believe that if I started to tell you how to treat each individual deformity which might occur, with a description of the apparatus best suited for its correction, the evening would stretch into tomorrow morning, and on the whole you would not be a great deal wiser.

SYNOVITIS OF THE KNEE JOINT.

This most common condition may be due to many causes, but is generally the result of trauma, and is known as acute synovitis of the knee, or water on the knee. The treatment is simple, but in spite of that I find that there are nearly as many ways of treating such a condition as there are different physicians. There are definite conditions to meet, however, in every case. These are to fix the joint, to prevent weight bearing, to diminish the pain and tension in the joint, to get rid of the excess synovial fluid, and to restore function within a reasonable time without too great loss of power from muscle atrophy in the leg. Now there are certain definite ways of accomplishing all this.

First, apply a ham splint, and have the patient go to bed or keep the leg in a horizontal position. Second, apply an ice bag over the knee; fasten this on by a many-tailed bandage and keep it in position for at least 48 hours, when it will be found that the pain has gone and the swelling generally much diminished, meanwhile protecting the skin with a piece of flannel. Many men believe in tapping the knee joint when it is much distended with fluid, and do this in their office with a trocar. They can do it if they wish to assume such a responsibility, but the more I see of knee joints the less I want to go into them under any conditions, and least of all in such a way. The fluid will always go down under the treatment described if given a chance, and I do not believe that tapping should be done except under exceptional conditions, and then with extreme surgical precautions. After the first few days let the patient get about with crutches without weight bearing, and start baking by electric light, and the use of gentle massage. If the swelling goes down well and the pain stops do not start passive motion, but take the splint off by the end of the first week, bandage the knee with a flannel bandage, with a felt

horseshoe pad about the patella to keep the direct pressure off it, and allow weight bearing, with what use in flexion the patient cares to give the joint. In this way you can get your patient well more quickly than usual, have a better joint, and a more useful leg than under the old regime, where the splint was put on and left for at least three weeks, at the end of which time the joint, although it might have no fluid in it, was absolutely motionless and stiff, and several weeks more were spent in recovering lost motion and regaining muscle strength. Intelligent use of the joint, even if it has a little fluid in it, does it far more good than all the fixation in the world, and makes for a better and quicker convalescence.

GONORRHEAL ARTHRITIS.

This disease is not infrequent. At its onset it is often confused with acute articular rheumatism, and it is one of the most difficult conditions to treat that is met with. It is always the result, as its name implies, of a gonorrheal infection, either of recent date or as a result of some old focus lighting up, and 10% of the cases of gonorrhea are followed by joint involvement—usually monarticular in one-half of all cases—which may come on during any stage of the disease, even when it has been latent for a long period of time. Foci existing in the prostate, seminal vesicles, uterus, tubes and ovaries may light up at any time and cause joint symptoms.

The joints usually affected are the larger ones—such as the hip, knee, ankle, wrist and elbows,—but the smaller ones—such as the tarsal, sterno-clavicular joints—do not always escape. The spine is often attacked, and many stiff backs in young men are due to this infection.

Arthritis never follows an attack of anterior urethritis, but when the infection reaches the posterior urethra, prostate and seminal vesicles, the joints may then become involved.

There are two types which are typical, and which can be classed as acute and chronic.

In the acute type the onset is sudden, coming on not long after the exposure to the infection; there is a chill, high temperature, full pulse, constipation and very severe and exquisite pain over the joint or joints involved. The discharge from the urethra may cease during this acute joint attack. The course of the attack may be rapid, and the patient may convalesce quickly. There is, however, always a tendency to recurrence.

The serous effusion may cause severe and agonizing pain, and aspiration or opening the joint and washing it out with salt solution or weak corrosive may be necessary. The serous exudates usually subside under bandaging and rest.

The chronic type, on the other hand, suggests a general infection. There is loss of weight and strength, and a condition exists of general debility. The joint symptoms may start up after passing a sound and often after urethral injections which spread the infection to the deep urethra. In these cases the joint may resemble in a general way an acute tubercular joint. The fibrous exudate and peri-articular inflammation cause limitation of motion, and lead to adhesions and ankylosis. Flat and acutely painful feet resistant to all splinting treatment, such as strapping, pads and plates, are often examples of gonorrheal infection of the tarsal joints and soft parts of the foot.

Inflammation may extend from a gonorrheal joint along the adjoining long bones to a greater or less extent; but such thickening is generally due to inflammatory infiltration of the tissues above the periosteum.

The spurs on the plantar surface of the os calcis are probably familiar to you all. They may be produced by one of two means: The one from muscle strain and irritation and pressure, and the other by bacterial influence.

Following an urethritis, there may be pain, sharp and severe, in one or both heels, occurring generally in males (some observers say wholly) between the ages of eighteen and thirty. The pain is so severe as to incapacitate the patient and make active treatment necessary.

The pain from these spurs, if not relieved from pressure, by pads, strapping, or lack of weight bearing for a while, may be removed by operation, which usually gives prompt relief. In a certain number of these cases the presence of the gonococcus has been determined at operation.

The treatment of these joints locally is best carried out by rest—either by splinting in a cast or by bed treatment—and later by massage and easy motions. In the very painful joints, operation may be indicated for relief of pain. Beyond these local measures there are other things which should be done, namely: (1) Building up the general condition, (2) in the acute and recent cases the use of the serum or bacterins; and (3) in the old cases—and by that I mean the cases which are essentially chronic, having arisen from previously latent foci, the use of such orthopedic measures as may promise relief.

Dilating the urethra by means of a sound, and washing it out with medicated solutions, is often of the greatest importance, for often old foci are concealed behind urethral folds or deep strictures, biding their time to make trouble, and furnishing a potent source of evil.

When the foci are in the vesicles or prostate, rectal massage of these organs is to be carried out, and Fuller of New York has achieved remarkable results in certain cases of infected joints by incising the vesicles. Prostatic abscesses are to be opened and drained. Following these procedures marked changes in the joint conditions are often noted in a very short space of time. The most interesting development of recent years in the treatment of these joints is by means of the sera and bacterins; and many observers regard the employment of these products as of value, but brilliant results are not to be expected. There is great variability in the toxicity of the cultures of the or-

ganisms, and in gonorrheal joint infection there is as yet no well-established ground for believing that the use of these products can produce any marked curative effect. It is perfectly obvious that vaccines have not proved useful in most people's experience, and also, in the chronic cases, that organized thrombi, ankylosis, subluxations, contracted tendons and bone proliferation will not yield to sera or bacterins. It is also reasonable to suppose that a serum which may be given may contain no specific antibodies for that specific case, when of course no benefit can be expected.

The present-day opinion is towards the use of the mixed vaccines—especially in gonorrhea—where the vaccine contains not only gonococci, but also strains of staphylococcus aureus, albus and citreus. By their use the deep infections of the prostate, vesicles and epididymis are best attacked, for their chronic inflammatory areas are seldom free from the common pus-producing organisms.

Case I. J. B., age 31, single. Contracted gonorrhea six years ago, followed soon after by an acute inflammation of the right knee joint. This condition lasted ten weeks, and cleared up under ordinary methods, without the use of vaccines or sera.

Seven months ago, for no apparent cause, the right foot, left knee and back began to pain him, since when the back has become increasingly tender, painful and stiff, and the right foot has become swollen over the dorsum, stiff and painful. The condition of the knee joint has cleared up, but there has remained a tender area over the tibial tubercle on the left. He has considerable difficulty in walking and getting about, and also experiences great pain in his back when in bed and when attempting to bend it in any direction.

I saw him first on Jan. 9, 1912, after he had plates tried for his feet, without relief. He had also had about six doses of anti-gonococcic serum given him, without any noticeable benefit. His general condition was very poor, and he was steadily losing ground.

An x-ray was taken of the right foot, which showed bony spurs between the astragalus and os calcis, and between the astragalus and the internal cuneiform, besides bone atrophy and general cloudiness of the tarsal joints. A plaster cast was applied to the foot from the toes to the knee, and the back was strapped. Crutches were supplied, and daily baking with the radiant electric light, and massage, was instituted. He at once began to be better, but it was thought advisable to have him under closer control, so he was admitted to the Cambridge Hospital. Here he had his baking and massage continued. He wore the cast on the leg, and also had a plaster jacket applied to protect his back. At the end of a month he was discharged, much improved. Since then his improvement has been rapid, due largely, I believe, to massage of his prostate and vesicles, and dilatation of his urethra by means of a sound. Since this local treatment has been instituted, more shreds have appeared in his urine, showing that he was apparently getting rid of some focus of disease. He gained weight, over seven pounds in two weeks. His back is no longer painful, but is still somewhat stiff; the foot is practically well, not swollen or tender; but in order to overcome a slight valgus present and prevent strain, he wears a plate. Movements of the foot are free and painless in all directions.

Case of Mr. P., No. 2. J. P., age 40, married. Seen in consultation with Dr. Dudley of Cambridge. The history was as follows: No definite venereal history, but stated that many years ago he fell astride a log, and following that he had a urethral discharge. The present attack began a few weeks before I saw him, following the attempt to dilate a urethral stricture, accompanied by a cystitis. He complained of great pain and tenderness in the back, and had great difficulty in even turning in bed. The right knee joint was swollen, full of fluid and tender, as was also the left ankle. The swelling involved also the tarsal bones, and was thick and boggy in character. He had been having autogenous vaccines, his blood cultures having showed the Neisser bacillus besides others, without benefit for some time, had had some baking of his joints, and was confined to his bed. I strapped his back firmly in hyperextension, bandaged his joints, instituted bladder washings, prostatic massage, and advised the further dilatation of his stricture, which could at that time take only about a No. 18 French sound. The vaccines were continued.

I saw him again about ten days later. He then was considerably better. The right knee was not as painful, the fluid was largely gone, and the back was distinctly better. The cystitis had practically cleared up. I advised omitting the vaccines, for I could not see that they were doing any good. His back was restrapped, and I also strapped his ankle. He was advised to get up with crutches and to try to get about. As his urethra was not any further dilated I advised the use of larger sounds and the continuation of prostatic massage. I have since heard that his progress has been steady but slow, that he now takes a walk about the room without crutches or cane, and that the urethra will take a 28 French sound.

This case shows how obstinate such cases may be, and how dangerous it may be to fall astride a log. It also illustrates the value of prostatic massage, support to irritated and inflamed joints, and the gradual dilatation of a stricture to the full size of the urethra so as to obliterate folds, behind which old foci may be lodged.

I now wish to take up my last, but not least important subject, and will speak of a condition which is familiar to you all, namely, flat feet. Now feet are of all kinds, and are as purely individual in their idiosyncrasies as the person may be to whom they belong. There are several different types which you all see, however, and which may be divided roughly as follows:

(1) Weak feet.
(2) Flat feet.
(3) Painful and irritable feet.

These three conditions are of all degrees, and a foot may be weak, flat and painful as well as have only one of these conditions present. Feet of class one are usually seen in children and young people, in individuals with generally poor musculature, and in many others, as a result of poor shoes, which may cramp the feet and so

cause loss of muscular strength. The feet are generally no more than pronated slightly, that is, there is a slight eversion of the sole of the foot, which brings the weight bearing line inside the inner edge of the foot and so causes strain, tired feet and inability to be on the feet long.

The following case is one in point, and is so typical of many that it should not be overlooked:

CASE I. Miss H., age 43. Has had trouble with feet for past seven years. Has tried various kinds of shoes, pads and shanks without relief. The disability has become more marked this last year, and she experiences so much discomfort and her legs and feet become so tired after doing a little housework or walking a few blocks to the town, that she is practically incapacitated for the rest of the day. When she had reached this stage I saw her in consultation with her physician, with the questions of what was the matter, what was best to do, and why had not Thomas' heels, pads and shoes relieved her, to be answered.

On examination it was seen at once that her muscles were flabby from disuse, that the pronation of her foot had caused a joint strain in the knee and had started up a low grade synovitis there. She had been wearing a bandage about this knee for an indefinite time, which had caused further muscle atrophy, resulting in further joint relaxation. She had also worn a bandage about one of her ankles with the same result. It was at once obvious that no foot splinting, by plates or otherwise, would be of avail until the muscle tone was bettered in her calves and thighs. I therefore started vigorous daily massage, electric light, baking and passive resistance exercises for the calf and thigh muscles, I made her take off her bandages, get low, snug-fitting shoes, give up her pads, and now at the end of about seven weeks she is practically a new individual, able to go about as she has not done for years, simply for the reason that she has recovered the use of her legs, which up to this time she had neglected to use sufficiently to keep her muscles in proper condition.

Other cases of class one may be much more simple than this one proved to be, and can usually be relieved by building up the inner edge of the heel about an eighth of an inch, and perhaps putting a slightly higher shank into the shoe, or by soft felt pads. Foot exercises, passive and active, are often advisable to prescribe, and the patient can then get well or not as she or he wishes, according to the degree with which he is faithful to the exercises.

Class 2 consists of those feet which are called flat. That is, where the long plantar arch touches the ground, in the extreme cases, to those where there is only a slight diminution of that arch. These are best treated by temporary splinting by plates or pads to allow the normal restoration of muscle balance, combined with exercises to strengthen the stretched and relaxed muscles. In certain mild cases, where a plate does not give relief or seem advisable, a flexible shank shoe may help by allowing the cramped and stretched muscles to do more work and so regain their tone. For people who stand a great deal the flexible shank is not satisfactory, for the foot muscles have to do all the work all the time under conditions in which they were never meant to work. For walking, however, it is good, for it allows freer use of the foot muscles than a stiff shanked shoe. When the feet are very flat, often plates and shoes are unsatisfactory and offer no relief, and manipulative procedures are then in order. The following case is one of severe flat foot, crippling in degree, and relieved absolutely by rest and fixation.

CASE II. Early last summer I saw in consultation with her physician a lady who had trouble with her feet for a year or two. She had tried several kinds of plates without relief, for they could not be fitted properly on account of the extreme relaxation of her foot, which was so great as to allow the scaphoid to touch the ground in weight bearing. I strapped her feet for a couple of weeks, which gave her only temporary and partial relief, and then sent her to a hospital, where I manipulated her feet under ether with a Thomas wrench. When I found that I could reduce the partial dislocation of her scaphoid and get her feet into an extreme varus position with very little force by my hands, I put her feet into plaster casts and left them there three weeks. All this time she had to go about on crutches, bearing what weight she could on the outer side of the casts and with the soles of the feet practically facing each other. At the end of this time I renewed the casts and strapped her feet again, until I could fit her to plates, which would tend to keep the inversion of the foot and at the same time hold the scaphoid in place. Before this treatment she was unable to get about without a great deal of pain, and was confined to the house. Since the restoration of her plantar arch she has been perfectly well and free from pain and discomfort, although having to wear plates.

Class 3 includes those painful and irritable feet which one sees as the result of over use, either in an acutely inflamed state or as a result of long continued abuse, resulting in a very stiff inflexible foot with some pronation and marked general contraction and spasm.

These feet are best treated by rest, that is, if not very bad, by strapping with sticking plaster and freedom from weight bearing, or if bad, by plaster casts extending to the knee, put on with the patient under ether, following either stretching by a Thomas wrench or division of the peroneal tendons so as to correct the valgus or eversion of the foot. The feet are put up in an extreme varus, or inverted position of the foot, as can be obtained, and kept in the casts for at least three weeks, at the end of which time plates are fitted to hold the position and the patient allowed to get about.

CASE III is that of a young man dependent on the use of his feet for a living, who had had considerable difficulty in getting about for some time. He had worn plates for several months without relief, and his feet were getting steadily worse, that is, more and more painful and irritable. I saw him in consultation with Dr. Andrews of Cambridge, and found the following condition: Both feet slightly

swollen and everted, marked general spasm and pain on attempt to adduct the foot; the general spasm was so marked that it was not possible to move the foot in adduction at all, and the attempt caused considerable pain. It seemed to me that as this young man wanted to go to work as soon as he could, and as his work depended on his being on his feet, the quickest way was the best for all concerned. He was given ether, the feet were manipulated and wrenched around into a varus position, and plaster casts were applied from the toes to the knees. He wore these for three weeks, when they were removed and plates fitted. This was about two years ago, and he recently told me that he works regularly and walks considerably, and has had no further trouble. In his case the general spasm from muscle irritation and strain was too great to be overcome without adequate and proper force, which plates could not supply. The enforced rest and stretching under ether supplied that want, as a result of which he is now well.

SIX YEARS' TREATMENT OF PULMONARY TUBERCULOSIS BY THE CLASS METHOD.*

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THE present paper is based upon data taken from the six years' continuous work of the writer, as the physician-in-charge of the Tuberculosis Class under the auspices of the Arlington Street Church, Boston. Between the dates May 1, 1906 and May 1, 1912, 113 patients applied for admission to the class; of these, 103 were admitted as members. These 103 patients have been under observation for periods ranging from one month to five and one-half years, and are included in this report, whether or not under treatment at the present time. The reasons for including all the cases is that only four of the present class members have been under treatment less than three months; to throw out these cases would necessitate eliminating twenty-two discharged cases that remained in the class less than three months.

During the month of April, 1912, I obtained direct personal knowledge of 99 of these 103 cases. The remaining four were last heard from November, 1906, April, 1908, July, 1910, and March, 1911, respectively. Of the 99, 24 are known to be dead, 75 are living. Sixty-two of the latter were examined by me during the month of April, 6 of the remainder had left Boston and 7 failed to keep their appointments. Of the six that had left Boston, only one had remained in Massachusetts.

STUDY 1.

The following table shows graphically what results have been obtained. The nomenclature and classification is that approved by the National Association for the Study and Prevention of Tuberculosis in its report of 1909.

It will be noticed that the total number of discharged cases is only 82. This shows that there were 21 cases under treatment May 1, 1912. The second column gives the definite condition of 99 on May 1, 1912, and the last known condition of the four who could not be traced this year.

An analysis of these results shows that 22 cases were discharged as arrested, 33 as improved, 21 as progressive, and 6 as dead. It is most important to note, however, that, although no cases were discharged as apparently cured, 16, or 15½% may be considered such May 1, 1912. The number of arrested cases has increased since discharged from 22 to 25, or 24%; the improved have increased from 33 to 34, or 33%; while, of the 21 progressive cases, only 18 have died. Thus 72½% of the original number are living and but 23½% have died during six years. What better evidence of the continuation of the treatment after leaving the class can be furnished than this striking improvement, which has marked the subsequent life of our graduate members?

STUDY 2.

Have these results been obtained by selecting particularly favorable cases for this treatment? A further study of the table will show that this is not the case. Only 10% of the patients, who have been chosen for the class, could be considered incipient at entrance. 90% were well marked- 38% moderately, and 52% far advanced. Of the incipient cases, all but one have been arrested or apparently cured. Of the 39 moderately advanced, 28% have been apparently cured, 30% arrested, 28% improved, and 12% have been progessive or have died. Of the 54 far advanced, 3½% have been apparently cured, 13% arrested, 39% improved, and 44½% progressive, or have died.

As an example of a far advanced case apparently cured, I wish to cite G. K., married, age 34. Admitted September 19, 1906. Third stage involve-

TABLE FOR STUDY ONE.

	TOTAL	APPARENTLY CURED		ARRESTED		IMPROVED		PROGRESSIVE		DEAD	
		DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912
Incipient	10	0	3	5	6	1	1	0	0	0	0
Mod. Advanced....	39	0	11	16	12	13	12	2	2	0	2
Far Advanced	54	0	2	1	7	19	21	19	2	6	22
Total	103	0	16	22	25	33	34	21	4	6	24

* Received for publication, Nov. 28, 1912.

ment of the lungs; general condition, poor; digestion markedly impaired; average of pulse for one week, 95-105; temperature, 98.4; and a history of repeated hemorrhages over a period of seven years. She was discharged as improved March 20, 1907, but continued to sleep out of doors until the winter of 1911-12. She has worked steadily since May 1, 1908, and has maintained a constant weight for the last four years. During these four years she has been entirely free from cough, expectoration, and has had a pulse averaging 68-78. The examination of the lungs shows retrogressive changes. She has raised no blood for over five years.

For a further understanding of the kind of cases submitted to our class-treatment, let us consider one important source from which we have secured patients. While on service at the Carney Hospital Out-patient Department October, November, and December, 1911, I treated 432 new cases. In that number, the diagnosis of pulmonary tuberculosis was made 43 times. From the latter number, with the assistance of the class friendly-visitor, I selected eight cases which proved suitable, from their nearness to Boston, from their home conditions and their personal attitude toward the disease, to be class patients. Thus out of an ordinary out-patient clinic it may roughly be assumed that one case in five or six would be found adaptable.

For this treatment to be successful there must be an opportunity for the patient to sleep out of doors, have the proper clothing, sufficient food and a fair amount of intelligence and adaptability. It has always been the policy of this class to choose those cases which give promise of obedience and perseverance, rather than those which seem to have favorable signs and symptoms. Thus no case has been considered too advanced to be given an opportunity to discover what we might do toward prolonging life. We have not been too insistent, moreover, at the start that a patient follow the rules implicitly, as our experience has taught us that it takes at least one month to persuade a new patient to conform to all the rules. Favorable cases have been encouraged to go to sanatoria and in several instances have stayed in the class only while waiting to be admitted to the proper sanatorium. On the other hand, 60 cases have remained that have been unsuitable for sanatorium treatment; 35, who were refused admission because too advanced; 7, refused admission because they had no civic settlement; and 18 children for whom, until recently, no provision has been made at our public sanatoria.

In this selection of the cases, my object has been to prove that this treatment affords recovery to people who, otherwise, would not be reached; and in consequence, occupies a definite place in fighting tuberculosis. What, therefore, has been the expense in money and in energy? and what results have been obtained by that expense?

STUDY 3.

The expense of energy can be measured first by the length of time that patients have been kept in the class. This study will be facilitated by the following table.

LENGTH OF TIME PATIENTS HAVE BEEN KEPT IN THE CLASS.

			TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	GRAND TOTAL
Patients	1–2 mos.	12	1 yr. 1 mo.	2	2 yrs.	2	3 yrs.	1	5 yrs. 1 mo.	1		
	2–3 mos.	14	1 yr. 2 mos.	1	2 yrs. 2 mos.	1	3 yrs. 1 mo.	1	5 yrs. 3 mos.	1		
	3–4 mos.	5	1 yr. 3 mos.	2	2 yrs. 4 mos.	2			5 yrs. 6 mos.	1		
	4–5 mos.	6	1 yr. 5 mos.	1	2 yrs. 5 mos.	1						
	5–6 mos.	7	1 yr. 6 mos.	2	2 yrs. 6 mos.	2						
	6–7 mos.	7	1 yr. 8 mos.	4	2 yrs. 8 mos.	1						
	7–8 mos.	7	1 yr. 9 mos.	1								
	8–9 mos.	6	1 yr. 11 mos.	1								
	9–10 mos.	4										
	10–11 mos.	1										
	11–12 mos.	6										
	1–12 mos.	75		14		9		2		3		103
		73%		13%		9%		5%		3%		
Months		347		247		251		73		190		1138

The average time of treatment for all cases has been 11 months. Seventy-five cases or 73%, however, have an average of 5 months, while 26, or 25%, were in the class less than 3 months. Of these 26, 4 are in the class now; 7 left to go to various institutions; 1 died; 3 became too sick to come to the class and died later; 6 were compelled to stop treatment sooner than advised, but have continued to follow directions carefully; 6 left against advice because sleeping out of doors or other regulations were distasteful. We wish to note here that 33% of the deaths have occurred among those in the class less than three months. A great amount of energy has not been expended, therefore, upon the absolutely hopeless case. On the other hand several advanced cases whose progress was necessarily slow remained in the class from one year to five and one-half years. This number comprises 27% of the total. Without doubt this has meant the expenditure of a great deal of energy on our part. Has not a method of treatment, however, which can keep its adherents under observation for such long periods without any relaxation on their part from the prescribed treatment, much to commend itself?

The expense of energy can be further determined by giving a brief statement of the routine work of the friendly visitor and the physician. The class meets as a whole once a week for two hours. Patients are examined at the physician's office as often as once in six weeks. Formerly the sputum was examined every month, but for the last two years less frequently. The friendly visitor visits the patients in their homes, according to the length of time they have been in the class, once in one, two or three weeks; and occasional visits are made at the homes by the physician. Once a month a committee meeting lasting one hour is held at the Arlington Street Church at which a monthly report is read and the needs of the class are discussed with those members of the church who are interested in this particular work. After discharge patients continue to make two or three visits yearly to the class, and the friendly visitor makes as many calls at their homes, encouraging them to continue sleeping out of doors, to take the proper amounts of food, and more especially the proper amount of rest. If she finds any reappearance of untoward symptoms, such as a return of cough, loss of weight and strength, she sees that the patient comes back to the class for re-examination.

Study 4.

How effective has the treatment been? First of all let me repeat that 72½% of the total number of patients were known to be alive May 1, 1912. Secondly it has been possible to secure such a hold upon the patients that they have continued the treatment faithfully over prolonged periods. There is no doubt that the most striking results have come from this long time that very sick patients have been kept under observation. It is not enough, however, to have succeeded in keeping several people alive. What proportion of them, therefore, have been able to resume useful lives? To answer this question, I have arranged the following table:

LENGTH OF TIME PATIENTS HAVE WORKED SINCE JOINING THE CLASS.

	TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	GRAND TOTAL
2 mos.	1	1 yr.	1	2 yrs.	5	3 yrs.	6	4 yrs.	3	5 yrs.	1	
3 mos.	1	1 yr. 3 mos.	1	2 yrs. 2 mos.	2	3 yrs. 2 mos.	1	4 yrs. 5 mos.	1	5 yrs. 1 mo.	1	
4 mos.	1	1 yr. 6 mos.	2	2 yrs. 3 mos.	1	3 yrs. 6 mos.	3	4 yrs. 6 mos.	3	5 yrs. 6 mos.	1	
6 mos.	3	1 yr. 7 mos.	1	2 yrs. 4 mos.	1			4 yrs. 7 mos.	1			
7 mos.	3	1 yr. 8 mos.	2	2 yrs. 6 mos.	2							
8 mos.	3	1 yr. 9 mos.	1									
9 mos.	4	1 yr. 10 mos.	1									
11 mos.	2											
1–11 mos.	18	1–2 yrs.	9	2–3 yrs.	11	3–4 yrs.	10	4–5 yrs.	8	5–6 yrs.	3	59
	17½%		9%		10%		9½%		8%		3%	57%
Months	130		165		291		380		414		187	1537

Average number of months of work of 59 patients has been 26½.

From this table it will be seen that 59, or 57%, are working; three, or 3%, two to four months; nine, or 9%, one year to one year and ten months; 11, or 10%, two to two and one-half years; 10, or 9½%, three to three and one-half years; eight, or 7½%, four to four years, seven months; three, or 3%, five to five an one-half years. Forty-one, or 39% of the total class membership, have worked over one year. Three, however, have died subsequently, and seven have had such marked disease of the lungs as to be permanently below par, while the remainder, 31, are to-day in good physical condition.

Fourthly it is important to state that several patients have had to work all the time that they were under treatment, which would have been manifestly impossible had they gone to a sanatorium. Moreover, ten who are called members because they are making weekly visits to the class are working. This has been an additional reason why I have considered it proper to include all patients in the present analysis. The following case is a good illustration of one of our working patients.

P. D., married, age 26. Admitted November 23, 1910. Moderately advanced. Weight 120 pounds. This man could not stop working entirely, but was allowed to cut his working day down to four hours. He began to sleep outdoors and to go to bed about 8 p.m. February 9, 1911, his weight was 144¾ pounds, and he could do as much work then in four hours as he formerly did in eight. May 5, 1911, his weight had increased only to 148¼ pounds, but he was then doing a full day's work. He has improved steadily and now weighs 170 pounds, a gain of 50 pounds; has no cough nor expectoration; temperature is normal and the pulse averages 72. This result has been achieved without the loss of a single day's work.

Thus far stress has been placed upon the favorable results in this work. I should now like to discuss the 24 cases that have died. It is a significant fact that 12 deaths occurred before November, 1907, or in the first year and a-half that the class was organized, a period, when there was not only little enthusiasm for this mode of treatment, but much open opposition to it both from the laity and the medical profession. Therefore, it was necessary to admit many who were desperately sick and those for whom we could hope to do very little. What we did for those hopeless cases, however, gave us our start and made it steadily more and more possible to draw a favorable set of patients. Now the methods of class-treatment and the

kind of cases best adapted to it are better understood. In 1908, two patients died; in 1909, three; in 1910, three; in 1911, four; and none thus far in 1912. Of the 24 cases that died, nine, or 38%, were in the class less than three months, eleven, or 46%, from three to eleven months; and only four, or 16%, for more than a year. The last four stayed long periods, two years and two months, two years and four months, two years and five months and five and one-half years, respectively. No case lived less than three months and eleven or nearly 50% lived from one year to five and one-half years after starting the treatment. The question may properly be asked of what advantage is it to keep these very sick people alive? I should like to answer that question by citing the following case.

M. W., married, age 31. Admitted May 9, 1906. Very far advanced. Weight 109 pounds. This woman had a process involving both lungs; pulse, 120; temperature, 98.6; urgent dyspnoea, severe cough and profuse expectoration. She was accepted after being refused at Rutland, much against the advice of Dr. J. H. Pratt, as both of us considered that she could live but a short time. She showed such a remarkable spirit and was so eager to live for the sake of her family that I admitted her, nevertheless. No patient that I have ever had followed the treatment more punctiliously. In May of 1908 her weight had increased to 130 pounds and all her symptoms had definitely abated. During the summer of 1908, while on a visit to her former home in Nova Scotia, she had two severe hemorrhages. As a result the process lighted up and progressed steadily from that time. Her weight gradually dropped to 95½ pounds and her pulse was constantly above 115. She lived, however, till November 2, 1911, and was able to keep her family united all that time. She saw her small boy grow from an infant 3½ years old to a manly little boy of 9. Such courage, perseverance and cheerfulness as she showed during the 5½ years that she was under observation I have never seen equalled. Two days before she died she told me that "she was as anxious to live every year, month, week or day possible, as she was the day she started the treatment."

The results obtained by this class method cannot be measured simply by its effect upon the patient. Its field has been far wider. Its influence has extended from the patient to his entire family and from there to an entire neighborhood.

How this has happened is illustrated by the case of E. S., a little girl 8 years old. She was admitted December 16, 1909. Weighed 59½ pounds; moderately advanced. Her mother saw that she followed the treatment carefully and was much impressed with her rapid improvement. She determined that the rest of the family should sleep out of doors, so that for the last 2½ years this entire family, consisting of a husband and wife, three sons and one daughter have slept out regularly. This spring the mother stated to me that in no winter had she burned so little coal as in the one just passed, which will long be remembered as a severe one. Her children throughout the winter have insisted upon playing their games and eating their meals in rooms with the windows flung wide open to such an extent that curious neighbors have asked if the house were vacant. It would be difficult to find four stronger, healthier-looking children than these. The mother also tells me that she has had no doctor's bill to pay for over 1¼ years, whereas, formerly a week was a long time to go without sending for a physician.

Having discussed briefly the results, and the expense of energy, let us now consider the financial cost. During the six years the class has cost the Arlington Street Church $6748.50, an average of $1124.75 per year. I have divided this sum into two parts: (*a*) which represents the actual running expenses of such a class and includes salaries, friendly visitor's expenses, stationery and thermometers, amounting to $4727.11; (*b*) which indicates the poverty of certain patients and the generosity of those financing this movement and includes cots, tents, blankets, chairs, food, rent and board, totalling $2021.39. The average cost per patient including the entire amount has been $65.52; excluding the special charities, it has been $45.90. Thus by the expenditure of $45.00 to $65.00 per patient, 47 people have been enabled to return to positions ranging from houseworkers, waitresses, dress-makers, nurses, night-watchmen, teamsters, plumbers, bookkeepers, and factory hands, from which they are receiving wages ranging from $5.00 to $25.00 per week. In addition 12 children have returned to school. One of our most expensive cases, financially speaking, has earned since going back to work over $1500, or, five times what we spent on him. As the average stay in the class has been eleven months, it has cost $4.17 per month per patient, when we take the smaller amount (*a*); and $5.95 per month inclusive of all expenses. This sum, therefore, has made it possible for 59 people to return to work for an average of 26 months to date.

The scope of the work and various points in this method can be further illustrated and more easily grasped by citing particular cases.

G. P., boy 9 years old. Admitted December 9, 1909. Far advanced process at both apices. Weight, 48¾ pounds. For several years he had acted the rôle of chief entertainer in his family, as a singer of songs, a reciter of pieces and, when I first met him, was in the habit of staying up nearly every night till 10 or 10.30 to play bridge with his parents. He ran an almost continuous temperature of 99-100 for the first eight months of treatment, although he was kept very quiet and slept out of doors. Now he weighs 64¾ pounds, stands high in school and has been free from temperature, cough and expectoration for over a year.

L. A., boy 10 years old. Admitted December 14, 1911. Weight, 52¼ pounds. He had a third stage condition in his lungs, an old tubercular hip, an active tubercular phlyctenular keratitis and two discharging ears. While under treatment this winter he has had periods when his daily temperature has been as high as 102. Here again the boy had been allowed to sit up regularly till after 10 at

night, and to play hard during the day. At my request he was sent to bed at 7 o'clock and permitted to sleep as late as he would in the morning. For over two weeks he slept till 10.45 or 11.00 a. m., 17 or 18 hours without waking. At present he sleeps from 13-15 hours daily, weighs 56¾ pounds, his conjunctivae are clear, and his ears stopped discharging more than a month ago.

The next two cases, in addition to M. W. already cited, show what has been accomplished with apparently hopeless involvement of the lungs.

F. E., young man 19 years old. Weight, 121½ pounds; height, 5 feet, 11 inches. Admitted November 6, 1906. Far advanced, both lungs involved; a large cavity in left. Temperature, 101.8; pulse, 120, when absolutely quiet. Disposition, morose. While under treatment, a cavity developed at the right apex in back. He was transferred from the class April 1, 1909, to the Mattapan Cottage Hospital with a temperature averaging 99.6, pulse 116 and weight 186½ pounds, a gain of 65 pounds while under observation. This young man continued to improve slowly so that in 1911 cough and expectoration had almost entirely ceased, lungs had healed remarkably, pulse had dropped to an average of 68-78, temperature 98.4. The disposition had become cheerful, hopeful and ambition had made its appearance. Weight had remained constant at 178 over a year. He improved so much during the summer that he was allowed to act as barber among the patients and was sent to Boston on errands by the Camp authorities. I had promised him a good position in October. September 16, however, just after he had gone to bed, he started to cough and asked for a basin, which was brought to him, but before lights could be lighted he had bled to death from a sudden, severe and wholly unexpected hemorrhage. He had been under observation nearly five years.

P. G., man 42 years old. Weight, 115. Admitted May 1, 1906, but treated by me privately from January 18, 1906. I consider this the most remarkable case that has been under my care; it has always made me hesitate before giving a fatal prognosis in this disease. He had the distinction of being told at three of our leading Boston hospitals during the first two weeks of January, 1906, that he had practically no chance of living a month, and that no sanatorium would accept him. His temperature in bed was 100.4, pulse 108; both lungs showed extensive involvement, with a large cavity in the left lung from the spine to the angle of the scapula. He coughed incessantly, raised two cups of sputum daily and could eat almost nothing. He followed treatment as carefully as possible under very adverse circumstances; among other things, he had to contend with a wife who for two years repeatedly asked me why I did not let "that man" die in order that she might marry a man who could support her. He had several hemorrhages at various times, but slowly improved and gained weight up to 142 pounds, his temperature became normal, pulse ranged from 75-90, but cough continued and the expectoration amounted to one cup daily. May 1, 1908, it seemed wise to let him go to work. He worked off and on till February, 1909, when he had a very severe hemorrhage with an exacerbation of the process in his lungs. He rested carefully then for three months, and started to work again May 6, 1909, as a gate-tender. He worked every day including Sundays and holidays until March 7, 1910, when he became night-watchman at a steam-packing factory. He has worked every night since then, Sundays and holidays included. His duties are to sweep two floors 125 by 40 feet and two store-rooms from which he removes from one to four barrels of dirt each night. This dirt must be carried on his back to a dump. It takes him just three hours working steadily to do this. In the meantime he must make the rounds of the building every hour; this takes him seven minutes each time. Besides this, he must keep the fire going all night to maintain the steam at sufficient pressure so that the private fire-apparatus can be used at any time; in the morning he must rake down the fire, clean out the ash-pit and have steam up so as to start the factory at 7 a. m. Today his lungs show a healed process throughout, the heart is drawn over to the left so that the right border is to the left of the sternum and the left border at the anterior axillary line. His pulse varies from 68-84, temperature 98.0, and the weight has remained constant at 125-127 since October 20, 1910. He goes for a week at a time without coughing and raises less than a teaspoonful of sputum daily.

Four of our cases, C. E., A. J., C. A. J., V. MacA., are interesting because they have had the complication of pregnancy. Three have passed through child-birth successfully and without exacerbation of their processes, which would have been detected, as they were kept under close observation before, during and after the puerperium. One of these cases after an interval of four years is about to have another child. The fourth case is half-way through her pregnancy now and is in splendid condition. All of them have lived outdoors during the entire time and as soon after the birth as possible. None have been allowed to nurse their children, nor have they assumed care of the child till it was a year old.

The last case which I wish to cite is interesting because of the large gain in weight in a comparatively short time, and more especially because of his faithfulness to the principles taught him.

J. MacC., man 22 years old. Admitted August 8, 1906. Weight, 173½ pounds. Incipient case, with slight involvement of right apex. This man literally lived outdoors and improved rapidly. He went back to work November 7, 1906, weighing 185½ pounds. He has worked steadily since then. Throughout the first winter his weight increased to 194½; now he weighs 210. This is none too much for him as he is 6 feet, 2 inches tall and his muscles are large and firm. His lungs show no evidence of past or present trouble. From the day he started the treatment, he has never been outdoors less than twelve hours a day.

CONCLUSIONS.

1. The scope of the class work, though small, is larger than appears at first sight, because its influence extends beyond the individual patient and includes his entire family.

2. It is not too special to be practical, since one case in six of an ordinary clinic is suitable for this treatment; and 90% of the cases treated were advanced.

3. The expense of money is comparatively small; $65.00 per patient, or $5.95 per patient, per month.

4. The expense of energy, though considerable, is not out of proportion to the results obtained.

5. (*a*) The results show that 72½% of the patients are living at the end of six years.

(*b*) That this furnishes a means by which patients can be kept under observation for long periods, one to five years.

(*c*) That it cultivates in the patients a spirit of great faithfulness toward the treatment after discharge from the class, which is evidenced by their continuance of out-door sleeping and their marked after-improvement.

(*d*) That a large proportion, 57%, of the cases have returned to useful occupations for an average of 26½ months; and that some cases were able to have their processes arrested without losing a day's work.

(*e*) That the number of deaths has not been discouragingly large, 23½% in six years. That 50% or more occurred among those in the class less than three months.

6. It affords relief to persons who would otherwise not be reached. (*a*) The far advanced. (*b*) Those without civic settlement. (*c*) Children. (*d*) Those who under no conditions will leave their homes.

7. For these reasons this method of treatment is entitled to definite recognition. Without it, a valuable aid in the common fight against tuberculosis is lost. Just as the sanatorium teaches the discipline, encouragement and details of treatment to the individual, in like manner does this method act as an object lesson to teach the same essentials in the home, amidst the routine of daily living.

THE RÔLE OF PTOSIS IN GYNECOLOGY.*

BY ROBERT M. GREEN, M.D., BOSTON.

VISCERAL PTOSIS, as a physical phenomenon, has long been recognized by others than physicians; but its medical recognition as a clinical disease entity and as an associated and etiologic factor in the production of other pathologic conditions is of comparatively recent date. In its common acceptance the term ptosis is understood as referring to prolapse of the abdominal viscera, not into a hernial sac, but into an abnormal position within the intact peritoneal cavity. This condition, whatever its cause, may be associated with, or may itself produce, similar downward displacement, or other disease, of the underlying pelvic viscera. In the female, particularly, these pelvic disturbances may be of great importance to the comfort and welfare of the individual; so that apart from the intrinsic conditions of abdominal prolapse, ptosis may play an important part in the consideration and remedy of pelvic affections. The rôle of ptosis in gynecology is therefore deserving of special study in connection with that of the general subject.

Prior to 1909, little had been written on ptosis in its gynecologic aspect. In that year, however, Reynolds and Lovett[1] published their first paper on this topic, and from their work has proceeded its more recent investigation. The present consideration of the literature, therefore, will take their report as a point of departure, and will aim to correlate what has been hitherto done without adding more new material.

In 1909 Reynolds and Lovett[1] published a preliminary report of work which they undertook in order to determine the application of physiologic research on the static problems of the human body to certain problems in clinical gynecology. Their investigations were chiefly concerned with the influence of corsets and high-heeled shoes on the symptoms of pelvic disorders. Reynolds points out that "if our belief that the abdominal ptoses are frequently the result of static conditions is in any sense correct, it is evident that if one of the operations for the correction of a retroversion or other ptosis is undertaken in the face of general static conditions which constantly urge the uterus backward, it is pretty sure to be either an anatomic or a symptomatic failure." Lovett, from the orthopedic standpoint, presents a study of cases of static backache, and of the effect upon them of various forms of corsets and shoes. The static backache, he finds, is usually due to conditions, such as a faulty corset, which throw the centre of gravity of the body too far forward. Singularly enough high-heeled shoes, though bad for the feet, tend to correct the evil of a bad corset. The good corset throws the centre of gravity farther back, and will relieve such a backache. The type of woman most subject to static backache and to visceral ptosis is the "unstable type with pronounced curves of figure whose outlines make wide excursions to one side and the other of the base of support." Since backache is the commonest single symptom of pelvic disease, it is therefore important for the gynecologist to differentiate such backaches as are associated with ptosis due to static conditions which can be corrected by a properly fitting corset or other appliance.

In 1910 Reynolds and Lovett[2] published the completion of their experimental study of certain phases of chronic backache, in which they elaborated the principles noted above, and figured the apparatus used in determining whether the posture of a given patient were at a fault. Such faulty posture, with its attendant backache, may be due to habit, fatigue, errors in clothing, or to trauma. It may be remedied by removal of the cause and by the temporary or permanent use of a properly fitting corset which keeps the

* Read at a meeting of the Surgical Fortnightly, Oct. 15, 1912.

centre of gravity back to its normal position. When backache is primarily associated with inflammatory or neoplastic pelvic disease, the faulty posture may be due to the patient's instinctive effort to relieve pressure on the diseased organs. The change in posture increases the backache, and thus a vicious circle is established. On the other hand, retroverted uteri and prolapsed ovaries "can be promptly relieved by minor intrapelvic treatment after the static faults which caused them have been corrected. Ptosis of the kidneys and upper abdominal viscera are equally important and should be considered. The complication of ptoses with inflammatory conditions demands evidently the weighing of relative indications in the individual case. Throughout the field of gynecologic practice the estimation of static conditions is of importance whenever backache is a symptom."

In 1910 Richard R. Smith[3] reported a study of enteroptosis which he had made on 400 women. He finds the typical characteristics of the woman subject to enteroptosis to be lack of fat, diminution in size of the thorax and upper abdomen, and muscular hypotonus, particularly in the abdominal wall. These form a type of woman which every physician will recognize, a type also more subject to static defects and to consequent pelvic disturbance.

Ochsner[4] studying the same problem in 1910 from a surgical point of view points out that the pendulous abdomen of enteroptosis, whatever its cause, allows the abdominal viscera to lie in front of instead of above the pelvis. It is the pressure of these misplaced organs which may cause retroversion of the uterus. For the relief of such pendulosity, he recommends Webster's operation of "laying bare the rectus abdominis muscle on either side of a median incision by laying open the fascia and then suturing all the layers successively, securing union between the internal edges of the recti muscles."

From a medical point of view Musser,[5] in the same year, studied other conditions,—neurasthenic and symptomatic,—associated with enteroptosis, and concluded these to be often not results but concomitants, parallel symptoms, with the ptosis, of a fundamentally depraved, bankrupt vitality, expressing itself in the various physical failures of the unfit. For these congenital ptoses, and the conditions associated with them, little can be done by medicine and nothing by surgery. For the acquired ptoses, in persons not wholly of a morbid habit, much can be done by removal of the cause and temporary aid till its results are overcome with prevention of its recurrence. When the symptoms for which relief is sought are gynecologic, the treatment must be determined by determination whether they are due to ptosis or are associated with ptosis as a cause or accompaniment.

Late in 1910 Reynolds[6] again reported some further results of his study of the etiology of the ptoses and their relation to neurasthenia. In this he also recognized under the static abnormalities producing ptosis, not only the thin, flat-backed, round-shouldered type but also the fat, overfeminine type, with hyper-extended knees, large hips, hollow back, small waist, prominent breasts, and small hands and feet. In both types "the centre of gravity is habitually carried too far forward." From these general static abnormalities leading to ptosis, he distinguishes the local causes of pelvic ptoses, among which he enumerates obstetric trauma, inflammatory diseases and developmental anomalies, the latter including chiefly excessive adherence of vagina to rectum, persistence of the ileolumbar ligament on the right side, and anteflexion of the cervix. All these conditions, he believes, may be and often are associated with neurasthenic phenomena, which may be relieved by relief of the ptosis, when the latter is acquired, but are not relieved when both are symptoms of an irremediably depraved, unstable physical organization.

The most elaborate and complete single recent paper on the subject of splanchnoptosis is that published this year by Burckhardt[7] of Königsberg. He reviews the entire topic in all its aspects, and presents an exhaustive bibliography of 582 titles. His work deals chiefly with ptoses of the abdominal viscera, but some of the references are to papers on gynecologic details of the general problems.

The very latest work to appear on the subject of ptosis in gynecology is that of Dickinson and Truslow[8] in a paper entitled "Averages in Attitude and Trunk Development in Women." These authors describe the three types of feminine posture as the normal, the kangaroo, and the gorilla, the second corresponding to the hollow-backed, the last to the flat-backed type above described. They give directions and methods for plotting the attitude, and emphasize its importance as a determining factor in gynecologic pain and ptosis.

CONCLUSION.

In conclusion it may be said that the rôle of ptosis in gynecology is primarily in the production of pelvic displacements, secondarily in association with and as a result of intrinsic disease of the pelvic viscera. In the one case it is a cause, in the other a symptom. When the ptosis is primary it may be congenital, in subjects of a depraved general physique, or acquired either by static errors or as a result of the fatigue and trauma incident to life. In any event, it should be considered as a possible cause for gynecologic symptoms, especially backache, and the proper measures adopted for its cure or relief.

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THE MARINE HOSPITAL AT BERCK-SUR-MER, PRINCIPALLY FOR CRIPPLED CHILDREN. THE LARGEST INSTITUTION OF ITS TYPE IN THE WORLD.

BY DOUGLAS C. McMURTRIE, NEW YORK.

SITUATED on the seashore of France at Berck-sur-Mer there is located the largest marine hospital in the world, an institution accommodating well over 1,000 patients. In many respects, and especially as regards its facilities for out-of-door treatment, the hospital is an establishment of great interest.

Though not specifically stated, the hospital is orthopedic in character and devoted largely to the treatment of the crippled children of Paris. Other cases of a medical or convalescent type are taken, but patients suffering from surgical tuberculosis are in the great majority.

The hospital was originally intended for scrofulous children when it was opened on July 8, 1862, with a capacity for 100 patients. It is probable that chance had a great deal to do with the choice of Berck for the site but it would be



Marine Hospital, Berck-sur-Mer.
View from Beach.

difficult to find a better location along the English Channel. Situated at .40 west longitude and 50.20 north latitude, the hospital is flanked by a stretch of beach fourteen miles long and, at highest tide, about a mile wide. This beach is of clear sand, free from pebbles or rocks. It faces due west and is protected from the cold north and east winds and is not affected by the southwest storm. In this latitude the temperature at sea-level is never very high and even in the extremes of winter never goes below 17° Fahrenheit and during most winters stays between 23° and 25°. The sand beyond the high-water mark is never frozen to a greater depth than two inches, and, according to the hospital authorities, this explains how the children are able to live in the open air and on the beach throughout the greater part of the winter.

There are no salt marshes in the vicinity. The sands are not shifting and every receding tide leaves a number of pools where the children can paddle and bathe in still water that often reaches a temperature of 77° Fahrenheit.

In 1867 there was started in a plot of 87 acres a new hospital with a capacity of 700 beds. The first small hospital had been located about ten feet above high tide (about 25 feet above average tide) but eight years' experience had shown that this was too low and the new hospital was built on a level six and a half feet higher. A balcony was built around the building, wings and court, providing a covered walk for the children a third of a mile in length.

There were fourteen dormitories of thirty-six beds apiece, each bed being allotted 1400 cubic feet of air. Five infirmaries, each containing sixteen beds, had the same cubic allowance of air. Two gymnasia were built in the playgrounds for use in winter and bath-houses for use in summer. A large swimming pool was built in the hospital so that sea bathing might be continued during the cold season. In addition there were tubs for warm baths, fresh and salt, a hydrotherapy room, Turkish baths, and bathrooms for the employees. The cost of construction amounted to about $625,000. In 1872 another addition, the "Rothschild Hospital," was built. Little by little the hospital originally designed for scrofulous and rachitic children, lost its original character and by 1901 became more of an active orthopedic hospital. The facilities were not entirely adequate for this type of work and between 1905 and 1910 there were erected additional buildings which increased the capacity by 300 beds. In 1909 an isolation building was constructed. Each year during the early part of August vacation clinics are held, which are attended by large numbers of French and foreign physicians who are interested in the seaside treatment.

According to the rules enacted in 1909 the beds are divided into two classes: those for bedridden children, and those for ambulatory cases. Four-fifths of the cases are surgical and one-fifth medical. The maximum length of stay is one year.

The children are recruited as follows: Each month the director of the marine hospital advises the General Hospital Board of Paris regarding the number of beds unoccupied and the probable number of children who will leave for Paris the following month. The different Paris hospitals are then informed of the number of vacancies for various types of patients, which they will have the privilege of filling. The director of each hospital sends the list of children chosen by the surgeons and physicians to the General Board which makes inquiries as to the status of the parents. After this the proposals are returned to the different hospitals which bring the children before the admission committee, which sits on the second Monday in each month at the "Hopital des Enfants Malades." The children are examined individually by the committee. As soon as one of them is appointed to leave, a ticket is given to the person who has the child in charge, indicating the date and hour when the patient must be brought to the hos-

pital, from which to be taken in a vehicle to the railroad station, "Gare du Nord."

The journey from this station in Paris to that of Rang-du-Fliers is made in a car specially designed and fitted for the service and belonging to the hospital administration. The car can accommodate about fifty children in addition to the persons in charge, viz. six nurses, one house surgeon and an employee of the administrative department who is in charge of the trip. The contract cost for the journey irrespective of the number of children and nurses is $37.35. The monthly vacancies average about eighty, so the car makes two trips both ways, with forty children each. The monthly list of children that are to return to Paris is made out by the surgeon; it includes the cured, those whose stay has not proved beneficial or has been unfavorable, and those called back by their parents. Each hospital receives one week in advance a return list of the children sent by it, and notifies the parents to be on hand, at the hospital, to take charge of them upon arrival.

The children are taken in carriages from the marine hospital to the station at Rang-du-Fliers, where they must arrive before 7.15 a.m. The car, which is kept at the Calais Station, is attached to the fast train leaving Calais at 5.58 a. m., arriving at Rang-du-Fliers at 7.28 and leaving again at 7.31 a. m. In three minutes the employees who are trained to the work, get the 40 or 50 children on board, together with the linen and baggage. The train reaches the Paris station at 10.20 a. m., where the representatives of the different hospitals await the children. The employee in charge of the trip hands over to the representative of the hospital whence they came, the little patients of his institution, the sorting out being facilitated by armlets with which the children are tagged before leaving Berck. Upon reaching the various hospitals the children are handed over to their parents. The special car which has brought from Berck the first returning contingent is used the next day to take back the first contingent going out to the hospital. A second round trip is made the two following days. The car is then housed at Calais till the following month.

The departures from Paris take place at 11.30 a. m. On their arrival at Fliers the children are taken in carriages to the Marine Hospital where they are installed in the isolation wards, two distinctions being made: In one case they are segregated from the rest of the patients at the hospital, in the other they are isolated individually. Children of the latter class are given beds in separate glass cubicles, and thorough antiseptic precautions are taken. Children of the former class are allowed in the court of the isolation building, then out upon the sand dunes and later upon the beach, but all the time kept apart from the regular patients. At the end of the month they are distributed among the various hospital wards. The children who are isolated in cubicles for the month are kept separate from the other patients for a second month, but during this period in a common room.



Isolation Cubicles.



Outdoor Treatment.
Gallery Outside Ward A.



New Building, Ward A.
The beds have been rolled out on the gallery.

There is also a contagious pavilion with 40 cubicles. The diseases are treated by the Pasteur hospital system which does not call for a special pavilion for each disease. After leaving the isolation department the children are placed in three groups: the bedridden in the buildings facing the sea, the semi-ambulant on the ground floor of the old buildings, and the fully ambulant on the upper floors of the old buildings.

The bedridden cases of long duration are lodged in the new building facing the sea, and as they are not in a position to be taken to the beach they spend much of their time on the galleries outside the wards. The use of outside gal-

leries is one of the features of the hospital at Berek and is worthy of imitation. The illustration of ward A shows it almost empty, the beds having been wheeled out upon the outdoor gallery, as shown in another photograph. The semi-ambulant patients are quartered on the ground floor of the older buildings. This arrangement avoids crowding the wards assigned to the bedridden and allows the children to take the prescribed amount of exercise in the adjoining yards and playgrounds, exposed to the sun. The ambulant cases in an advanced state of convalescence are provided for on the second and third floors of the old buildings. They go out on the beach morning and afternoon, take sea baths in summer and warm salt baths in the pool in winter. Marine treatment is supplemented by the regular orthopedic procedure, though operations are avoided except when absolutely necessary. All modern facilities are provided for the hospital work. There are large modern kitchens in both the new and the old buildings and there is a large laundry equipped with adequate machinery to take care of the washing.

The children are placed on one of the three following diets: (*a*) milk diet for those of any age who can assimilate milk only, (*b*) diet for children between the ages of two and seven, (*c*) diet for those over seven years of age.

These diets are made up as follows: (*a*) The milk diet consists of two quarts of milk per diem. (*b*) This diet consists of 2 quarts of milk and ½ lb. of bread during the day, plus the following: *Breakfast*, ½ pint of milk soup or cocoa made with milk. *Luncheon*, ½ pint of meat or vegetable soup, ¼ lb. of fish or 1-5 lb. of meat; ½ gill of purée of dried vegetables or 6 oz. of rice or macaroni paste or 5 oz. fresh vegetables or potatoes. *Dessert* is served as a collation between luncheon and dinner and consists of either 1½ oz. of jam or 2-3 oz. of cheese or 2 oz. of dried fruit or ½ oz. of chocolate. *Dinner*, ½ pint of milk soup, an egg, and a vegetable different from the one at lunch. (*c*) This diet comprises for the day 1½ pints of beer, ¾ gill of wine, 13 oz. of bread, plus the following: *Breakfast*, same as diet *b*. *Luncheon*, same as diet *b* except slightly heartier. *Dessert* is served as collation same as diet *b*. *Dinner*, ½ pint of meat or vegetable soup, 2 eggs or 5 oz. of meat and a vegetable different from luncheon.

The hours for meals are as follows: For bedridden patients, breakfast 7 a.m., luncheon 10 a.m., collation 2 p.m., dinner 4 p. m. For ambulant patients, breakfast 7 a. m., luncheon 10.30 a.m., collation 2 p. m., dinner 4.30 p. m.

There are four class rooms each with a capacity of fifty children where the educational requirements of those patients who are well enough are provided for. School hours are from 8 to 9.30 a.m. and from 2.30 to 4 p.m. for the older pupils. The elementary classes are from 9.30 to 11 a. m. and from 2.30 to 4 p. m. The duties of the teachers do not exceed four hours per day.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

KIDNEY.—RENAL TESTS.—URETER.—BLADDER.—URACHUS.—PROSTATE.—TESTIS.—CLOSURE OF NEPHRECTOMY INCISION.—CANCER OF PROSTATE.—EXCLUSION OF THE BLADDER.—RESULTS OF SURGICAL TREATMENT OF RENAL CALCULI.—THE END RESULTS OF NEPHRECTOMY IN CASES OF RENAL TUBERCULOSIS.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

KIDNEY.

Perinephritic Infection.—Harzbecker[1] reviews the entire subject and reports a series of cases from Körte's clinic. He insists that the cause of the infection is usually traceable, often to some slight condition such as a paronychia, furuncle or carbuncle. The urine sometimes shows casts and blood cells and occasionally the organism may be isolated from it.

Ascending Infection.—Müller[2] studied the pathology of non-tubercular infections of the kidney and concluded that the process extends from pelvis to parenchyma through lymph channels and not by way of tubules, although as the infection extends along the lymph channels it may often rupture into tubules, so infecting them.

Tuberculosis of the Kidney.—J. H. Cunningham, Jr.[3] This is a study of the relativeness of tuberculosis of the kidney to tuberculosis of the lungs. It was found that out of 825 hospital cases of pulmonary tuberculosis, 70, or 8% had renal involvement and of these 70 cases, 11 or 15 5-7%, had a unilateral infection only. From urine analysis, 216 cases, with albumin found in only 13, and guinea-pig inoculation being negative for tuberculosis in every case, Cunningham concludes that renal tuberculosis is not often associated with pulmonary tuberculosis even when the latter is far advanced in its development The latter part of this work was devoted to experiments to determine whether tubercle bacilli are eliminated from the circulation by the kidneys without producing tuberculosis of these organs. The writer thinks his work justifies the inference that "it is not common, at least, for the tubercle bacillus to be eliminated through the kidneys without affecting the organs in patients sufferings from pulmonary tuberculosis."

Use of the X-ray in Tuberculosis of Kidney.—The writers[4] assert, as the result of a study of a small series of cases, that the findings are typical and permit an exact anatomic orientation of the conditions before operation.

RENAL TESTS.

The Phthalein Test.—Rowntree and Geraghty[5] follow their original article with this second one which contains the following conclusions:

1. The absorption of phenolsulphonephthalein following injection into the lumbar muscles is better than the absorption from the gluteal injection, while the latter is superior to subcutaneous injection.
2. Administration into the lumbar muscles is the method of choice.
3. Experimentally those diuretics that stimulate the renal cells to increased activity cause some increased secretion of phenolsulphonephthalein, while those that act mechanically produce no increased secretion. Clinically diuretics do not influence the phthalein output.
4. Experimental evidence seems to indicate that phenolsulphonephthalein is excreted mostly by the tubules but probably also to a slight extent by the glomeruli.
5. The renal cells display a striking specificity in the excretion of phenolsulphonephthalein.
6. Phenolsulphonephthalein has many advantages over all other functional tests so far proposed.
7. It is better adapted for use as a functional test than any other drug previously employed for the same purpose, on account of its early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.
8. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.
9. It is of immense value from a diagnostic and prognostic standpoint in nephritis inasmuch as it reveals the degree of functional derangement in nephritis, whether of the acute or chronic variety.
10. In the cardiorenal cases so far studied the test has proved of value in determining to what degree renal insufficiency was responsible for the clinical picture presented.
11. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present.

Excretion of Formaldehyde.—Burnam[6] concludes from a study of many specimens of bile, sputum, saliva, urine, etc., that even after large doses of the drug only minute traces appear in these fluids and that it occurs in such small traces as to be without value therapeutically. In urines, however, free formaldehyde is found at times in quantity and only in these cases does any benefit appear from the use of the drug. In other words, the clinical and chemical findings have agreed.

Excretion of Formaldehyde.—O. R. T. L'Esperance.[7] This paper represents a study of the Burnam test just mentioned above. The author concludes:—

1. Formaldehyde appears in the urine in only 52% of patients taking urotropin.
2. Reaction of the urine is of no importance.
3. Alkalies taken with or in combination with urotropin have no effect on excretion.
4. Duration of excretion of formaldehyde is about four to six hours.
5. Increase of dosage does not affect excretion in negative urines.
6. Urotropin practically symptomless in average dose.
7. The urine of all patients taking urotropin should be tested for formaldehyde.
8. Patients not excreting formaldehyde are symptomless regardless of the amount of urotropin taken.

The test is performed as follows: To about 10 c.c. of suspected urine in a test tube at body temperature is added:

1. Of solution phenylhydrazine HCl 0.5% gtts. iii.
2. Solution sodium notroprusside 5% gtts. iii.
3. Of saturated solution sodium hydrate a few drops poured along the side of the test tube.

As this latter solution diffuses throughout the urine in the tube, if formaldehyde is present (or the urine is positive), a deep purplish-black color is seen quickly changing to dark green, gradually getting of a lighter shade of the same color, to finally, pale yellow.

With a urine that does not contain formaldehyde (or is negative) the color reaction is as follows: As the saturated solution sodium hydrate diffuses through the urine in the tube, a reddish color is seen gradually turning to light yellow.

Diastase Test for Renal Function.—The writer[8] says that diastase ferment is eliminated less well by diseased kidneys than by normal ones just as is the case of sugar, salt, etc. He therefore contends that the amount of diastase in the urine may be used as an index of renal function. The technic for the test is merely addition of 1 drop of normal 1-10 solution of iodin to each of ten test-tubes containing progressively increasing amounts of the urine, to each tube having been previously added the same amount of a 1% solution of starch. The iodin stains the undigested starch blue, while in the tubes in which the action of a diastase is apparent the tint is yellow or orange.

URETER.

Ureteral Ligation.—Barney[9] has written his article embodying three years' experimental work on animals, in the effort to show by results the effect of sudden and complete occlusion of the ureter. His summary of results is as follows:—

1. Sudden and complete occlusion of one ureter may produce no symptoms whatever, and uninterrupted recovery may ensue in 21% of cases, but,—
2. In the event of an injury to both ureters there is complete anuria in all, as is to be expected, whereas,—

3. In the unilateral injuries suppression of urine occurred in only 1.6%.

4. Ureteral fistulae are developed in 24%, their site depending upon the nature of the operation.

5. Where only one ureter is ligated, pain and tenderness in the kidney, usually subsiding spontaneously is to be expected in 26%. It has not been found in cases of bilateral injury.

6. Infection of the kidney produced by the injury to the ureter, or aggravated by it, and necessitating subsequent nephrectomy, occurred in 15%.

7. Both ureters may be clamped for as long as 72 hours with complete recovery after removal of the obstruction, whereas one ureter may be completely blocked for ten days without destroying the integrity of the kidney.

8. Of 15 patients in whom the subsequent condition of the kidney was investigated, hydronephrosis was observed in 80%, but in no case was this of more than moderate size. In the remainder there was said to be "no change" in the condition of the kidney.

9. The mortality of bilateral occlusion of the ureter is found to be 33.3%, whereas,—

10. In unilateral occlusion the death rate is 17.8%, but in both instances we must consider the influence of other factors, such as the previous condition of the patient, and the severity of the operation.

11. Our investigation of this series of cases shows (*a*) that there is a strong probability that many a ureter is ligated without the fact being known, and (*b*) that in the presence of postoperative anuria, and in the absence of localizing symptoms examination of each ureter by the cystoscope may be the only means of determining whether one or both ureters have been occluded.

Scott[10] in a series of 41 experiments on dogs and similar in character to Barney's just quoted, reaches the following results:—

1. Complete ligation of the ureter produces hydronephrosis, the degree depending upon the duration of the obstruction.

2. The changes occurring in the kidney parenchyma after complete obstruction of the ureter take place in a definite order. First, the straight tubules are dilated, then the convoluted tubules are similarly affected, and last to suffer are the glomeruli. These changes consist of dilatation of the tubules, flattening of the epithelium, granular changes of the epithelial cytoplasm and occasionally breaking of the cell wall. The interstitial tissue is usually increased and in late stages the blood-vessels are sclerotic.

3. Compensatory circulation by anastomosis of the renal vessels with vessels entering the kidney through the capsule probably plays no part in determining whether a primary atrophy or hydronephrosis develops after complete ligation of the ureter.

4. Incomplete obstruction of the ureter produces hydronephrosis.

5. The degree of hydronephrosis following incomplete ligation of the ureter depends upon the duration and upon the pressure required to force urine past the constriction.

6. Complete permanent obstruction produces hydronephrosis more rapidly than an incomplete obstruction of the ureter.

7. The microscopic changes following incomplete obstruction of the ureter are practically the same as those following complete obstruction.

8. Complete ligation of the ureter retards secretion of the kidney but will not completely arrest it.

9. In hydronephrosis of highest degree, the kidney epithelium is never completely destroyed, but is capable of further secretion.

10. Complete permanent ligation of the ureter does not produce atrophy of the kidney, but this resulted in one case of incomplete obstruction.

Beer[11] in a third article embodying the results of similar experimental work, offers the following résumé of his results:

Infection of a non-stenosed ureter may lead to a hydronephrosis, but rarely to abscess formation. Aseptic ligature of ureter leads regularly to a primary hydro-ureter and hydronephrosis, but at about three weeks an atrophy and shrinkage of the hydronephrotic sac begins and continues so that after three to four months the kidney is represented by a small fibrous mass, provided infection is not present, in which case a huge hydronephrotic sac results. After three weeks' exclusion sufficient parenchyma persists to warrant an attempt at secondary implantation of the ureter into the bladder.

Ureter Grafting.—Chiasserini[12] experimented upon the ureters of dogs with grafts, using pieces of vein or artery, suturing the grafted material to the cut ends of the ureter by a modified Carrel method. His conclusions follow:

1. There is a possibility of the vessel introduced between the two ureteral ends becoming firmly united to them.

2. The piece transplanted, a few days after the operation becomes shortened so as to draw the two ureteral ends nearer together.

3. The graft becomes thicker and hard, while the lumen is nearly obliterated.

4. The stenosis causes a stoppage in the flow of the urine with consecutive dilatation of the canal of the ureter and hydronephrosis. It is certain at any rate, he says, that vascular grafts cannot be used to replace a segment of the ureter.

BLADDER.

Iodin Vapor in Cystitis.—Farnarier[13] advocates and reports good results from the treatment of cystitis, both acute and chronic, with iodine vapor injected into the bladder through a catheter from a flask in which the vapor is generated by heat from iodoform.

Colon Bacillus.—Koll[14] presents a clinical and experimental study of the colon bacillus in the bladder and elsewhere in the urinary tract, and presents the following conclusions, reached from his work on a comparatively small number of cases, relative to the value of liquor aluminum acetate as a therapeutic agent:—

1. Liquor aluminum acetate in a dilution of 2% is an active germicidal and antiseptic agent to the colon bacillus and the colon group of bacteria.

3. Liquor aluminum acetate in 2% dilution has no deleterious effects upon the mucous membrane of the urinary tract.

3. The germicidal and antiseptic properties are due to the acid radical of the drug, as proven with the experiments with acetic acid.

4. Whether or not the acetic acid produces any untoward action upon the mucous membrane of the urinary tract will be reported upon in a subsequent communication.

5. The internal administration of the subacetate of aluminum raises the total acidity of the urine, which is desirable in dealing with the colon bacillus infections of the urinary tract.

The clinical observations lead us to believe that:—

1. Colon bacillus infections of the kidney pelvis, urinary bladder and male urethra are more promptly ameliorated by the 2% liquor aluminum acetate than by any therapeutic measure previously used.

2. The bacteria in the urethral discharge disappear in from 36 to 48 hours following the instillation with the liquor, but other astringents may be necessary to "dry up" the discharge.

3. Care must be exercised in the preparation of the liquor aluminum acetate as an excess of free acetic acid will produce unpleasant subjective symptoms. The solution must not be more than a week to ten days old when used.

4. The liquor aluminum acetate is of value only in those cases where the presence of the colon bacillus is proven by cultivation under the most careful aseptic precautions.

URACHUS.

Smith[15] reports three operated cases, two of patent urachus and one of tumor with a broad, fibrous urachus for its pedicle.

Pearse[16] reports an extraordinary case of tuberculosis in a patent urachus with haematuria.

Schwarz[17] describes what he believes to be the first recorded case of primary cancer of the urachus. It occurred in an elderly man and was removed without difficulty.

These cases are recorded for their interest and rarity.

PROSTATE.

Lendorf[18] agrees with Zuckerkandl and Tandler that the old arbitrary division of the prostate into two lateral and one median lobe is no longer tenable and that the nomenclature of prostatic anatomy and pathology must be radically revised to represent known facts. He insists that the hypertrophy of later years is a hyperplasia of bits of prostatic tissue under the mucosa of the prostatic urethra and inside the vesical sphincter and that the prostate itself is pushed outward by this hyperplasia and is not removed in suprapubic operations and the ejaculatory ducts should remain intact. Kolischer,[19] Marion,[20] Legueu[21] uphold these anatomical and pathological views.

Chiari[22] also considers that the newly found tissue is largely adenomatous in character and suggests neoplasm. These essential changes in the gland take place independently of any inflammatory process.

TESTIS.

Barney[23] studied 153 cases of tubercular epididymitis at the Massachusetts General Hospital and advocates epididymectomy with vasectomy as the operation of choice in such cases.

Mallannah[24] in studying hydroceles from a bacteriological point of view, found one case which contained bacillus pyocyanens. He injected a vaccine containing 25,000,000 of this germ into the evacuated tunica vaginalis and after a fairly severe inflammation the case was cured. Encouraged by this case, he accomplished similar results in a dozen or more other cases.

Caforio[25] claims good results for auto-serotherapy in hydrocele cases and says he found it adequate in 45% of his cases.

CLOSURE OF NEPHRECTOMY INCISION.

Mayo, Wm.[26] advocates the entire closure of the outer wound after nephrectomy in cases of tuberculous kidney. This advice rests upon his belief that in many cases in which the frequently resulting sinus after this operation in the cases aoove mentioned allows the production of a mixed infection which accounts for some of the manifestations that may appear following these nephrectomies and also may account for the death of some of the patients having such fistulae.

After cleansing the operative field as well as possible and removing all tuberculous material that may have been spilled in it, he fills the cavity made by the operation with normal saline solution and sutures the outer wound tight. He believes that the salt solution, which is rapidly absorbed, enables the safe absorption of the material which is infected with the tubercle bacilli in an attenuated state because diluted and absorbed quickly before having the time to establish favorable cultural conditions.

CANCER OF THE PROSTATE.

Desnos[27] reports two cases of cancer of the prostate in which he removed the gland dur-

ing the early phase of the disease. The patients were respectively 66 and 67 years of age. Each of them had begun to have frequent and distressing urination three years before.

The prostate was removed by the perineal route in both cases. The gland was very adherent to the outer capsule in the first case, less so in the second one. Hemorrhage was unusually abundant in both cases.

The examination of the specimens showed cancerous nodules in both of the glands. Convalescence was prompt in both cases and there has been no recurrence in one of them during five years and in the other during four years.

The operations were the ordinary perineal enucleations of the gland within the outer fibrous sheath.

EXCLUSION OF THE BLADDER.

Revue Clinique D'Urologie.[28] In this article are given the results of exclusion of the bladder in cases of renovesical tuberculosis in which either nephrectomy cannot be practised or having been done has failed to give permanent relief owing to the vesical lesion and the passage of the urine over its infected surface from the second kidney or to the infection of the second kidney with tuberculosis when nephrectomy has been done on its fellow of the opposite side.

The article refers to five cases done previous to the two in which the writer has followed the same plan as in these five, which was that of making derivation of the urinary secretion by implantation of the divided end of the ureter of the remaining kidney—the opposite one having already been removed by nephrectomy—into the intestine in two cases and by nephrostomy and establishment of permanent renal fistula in the loin in five others. The first two died, the last five survived. All of these five patients were relieved or nearly so of the painful vesical tenesmus from which they had suffered.

RESULTS OF SURGICAL TREATMENT OF RENAL CALCULI.

Kouznetzki[29]. The writer presents the results of surgical treatment in 82 cases of renal and ureteral calculus which occurred in the clinic and private practice of Prof. S. P. Federoff of St. Petersburg. The methods and results of the surgical procedures in these cases were as follows: There were fifty-two cases in which the disease was unilateral and seventeen in which it was bilateral. Of the former 7 died after the removal of the calculus, of the latter 6 died. Two other patients died after operations done when anuria was present. In one of them the condition had been present for eight days. A unilateral operation was done and the patient died on the thirteenth day afterward. The operation was pyelolithotomy. The disease was bilateral in this case.

In the second case with anuria in which death followed the surgical intervention a simultaneous bilateral nephrolithotomy was done. Anuria had been present for five days in this case. The patient was 78 years old. Death followed on the sixth day after the operation. In both cases the urinary secretion was established but this fact did not save the lives of the patients.

In a third case with anuria a unilateral ureterolithotomy was done and the patient survived. There was but one kidney present in this case. The patient was a woman 65 years of age.

In seven of the cases of bilateral disease the operation was done on both sides at one sitting. Three of the patients died, all of sepsis. In 10 other bilateral cases one kidney only was operated. Three of these patients died. Two of them from uremia, one of thrombosis of the renal artery.

Summary of bilateral cases in three of which anuria was present. Number of cases 17, unilateral operation 10 cases, deaths 3; 7 cases simultaneous bilateral operation, deaths 3.

Pyelolithotomy was done in 11 cases of unilateral disease. Cure resulted in all of them. Nephrolithotomy was done in but 6 cases. In two of them cure followed. One patient died, and one had fistula and two were submitted to secondary nephrectomy. Ureterolithotomy was done in four of the 11 cases of ureteral calculus. One patient died.

Nephrectomy (not stated whether primary or secondary) was done in 24 cases. There were three operative deaths, one from secondary hemorrhage due to slipping of ligature on pedicle, one of uremia and one of double pneumonia.

The writer is an advocate of pyelolithotomy when the operation is possible to do.

THE END RESULTS OF NEPHRECTOMY IN CASES OF RENAL TUBERCULOSIS.

Israel.[30] From this very important communication of Israel the following conclusions are stated with regard to the end results of nephrectomy in cases of renal tuberculosis. They are based upon a study of 1023 cases in which the operation was done, 170 of them being Israel's own cases. The results noted before six months after operation are called the near results; those after six months are called the distant or later results. 10-15.0% of the patients died in the cases reported at longer than six months or less after the operation and 12.9% of them died within the first six months following nephrectomy. The total mortality taken together was 25.0% and the lives of 75.0% were saved by the operation. The chief cause of the deaths in the deaths occurring later than six months was pulmonary tuberculosis in men and the chief cause of deaths in the fatal cases occurring under six months following operation was acute miliary tuberculosis.

In most of the fatal cases of acute miliary

tuberculosis the condition is a result of the operative procedure. The condition occurs twice as often in the first half year after nephrectomy than at any and all later times.

More than one half of all the deaths that are after the first six months occur in the course of the second year following operation. Among these fatal results 45.2% are due to pulmonary tuberculosis, 35.9% to tuberculosis of the opposite kidney and 140% to miliary tuberculosis.

In almost one-half of the fatal tuberculous infections of the remaining kidney after its fellow has been removed by nephrectomy death occurs in the course of the second year after the operation on the first kidney. A few have been reported in which the infection of the second kidney did not lead to death until nine years after the nephrectomy.

In the great majority of the cases of the series in which tuberculosis of the second kidney appeared after the nephrectomy the second kidney was already infected with tuberculosis when the operation was done on the fellow organ.

Nephrectomy in cases of bilateral renal tuberculosis is justifiable only when one kidney is extensively invaded, when there are in this kidney attacks of severe pain or when the disease in it gives rise to repeated and severe hemorrhages and when the second kidney is only in the early stage of tuberculous infection.

In unilateral cases the removal of the infected kidney greatly protects the second one.

After nephrectomy in unilateral cases tubercle bacilli disappear from the urine in three quarters of the cases.

The larger the number of cases there are in which the bladder is infected the larger will be the number in which the bacilli persist after nephrectomy.

The absence of tubercle bacilli is only to be determined by an inoculation test.

The presence of tubercle bacilli may occur despite general good health of the patient and with a normal functional performance of the remaining kidney and of the bladder. This has been observed as late as the 17th year after the removal of the tuberculous kidney. The bacilli may be present when the urine is absolutely free from any trace of albumen.

Cystoscopic examinations of the bladder after nephrectomy show that the process of tubercular inflammation of the viscus is greatly improved in 43.5% of the cases, and complete healing of the process in 43.1%. Unchanged or worse in 9.0%.

In the larger number of cases the bladder inflammation, when it continues after nephrectomy, is not of tubercular nature, at later examinations.

When the frequent urination becomes worse after the operation it is generally due to an infection or extension of an already present infection of the other kidney, sometimes, but much less often to an involvement of the prostate. If the painful micturition has been dependent on tubercular involvement of the bladder the disappearance of the pain is strong evidence that the process in the bladder will disappear. Pregnancy after nephrectomy does not exercise a deleterious influence upon the remaining kidney than if the patient had two kidneys, if the remaining organ is not infected. Tuberculous infection of the ureter usually heals spontaneously in most instances.

Every factor in the study of this series of cases, speaks emphatically in favor of early nephrectomy in unilateral tuberculous renal infection.

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Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Meeting Held in Montreal, Canada, May 29, 30, 31, 1912.

BLOODLESS SURGERY OF THE LIVER. AN EXPERIMENTAL STUDY OF THE POSSIBILITY OF EXCISION OF MAXIMUM AMOUNTS OF LIVER TISSUE, WITH THE USUAL INSTRUMENTS AT HAND IN ANY HOSPITAL.

BY JOHN R. McDILL, M.D., OF MANILA, PHILIPPINE ISLANDS.

An enterostomy clamp armed with rubber tubing is passed through a one-inch incision just below the ribs in the mid-axilliary line into the abdomen; one blade is introduced into the foramen of Winslow about 2 inches; when the clamp is closed the circulation in the liver can be turned on or off completely or partially as desired.

For the support of the parts after resections of large wedges of liver tissue, a Martin gum bandage passed entirely around the liver is proposed.

The experiments on dogs show that 20 to 30 minutes complete interruption of circulation is not followed by bad results, and it is thought that in clinical work the circulation can be completely interrupted with safety for from 8 to 10 minutes. More experimental work, however, will be required to determine the limits of this precedure.

CONCLUSIONS.

1. Extensive liver resection for diseases is limited to primary, single or closely grouped, accessible, condition: size may be no contra-indication, unless too near the portal vein or hepatic arteries. In all primary growths observe Tuffier's caution carefully to determine glandular involvement along the vessels at the base of the liver.

2. All procedures can probably with safety be made entirely bloodless for at least 8 or 10 minutes: by opening and closing the forceps the circulation can be turned partially or entirely on or off to avoid the danger of a too prolonged interruption: this controlled blood stream also favors hemostasis by slowly filling up cut vessels and stitch wounds with coagula: compresses to cut or wounded surfaces during a reestablishment of circulation would prevent undue loss of blood and allow of ligation or circumstitching of venous channels.

3. Great congestion of the gastro-intestinal branches of the portal system, blueness of the intestines, and subperitoneal ecchymoses while using the clamp indicate a dangerous degree of back pressure. The shorter the time of complete temporary arrest of circulation, the better.

4. The variability of the liver tissue, and of degrees of portal pressure should be remembered: a marked chronic portal congestion should contra-indicate extensive operations.

5. Traumatic rupture of the liver frequently occurs without any external evidence: owing to structural arrangements, tearing of large vessels may result in continuous hemorrhage which is partially checked by reflex muscular rigidity and intra-abdominal tension, relief of this pressure upon opening an abdomen allows of increased bleeding unless immediate digital compression of the hepatic vessels is effected.

6. In favorable cases liver tissue can be removed to the physiologic limit under practically bloodless conditions.

7. Chloroform is always contra-indicated in liver operations on account of the danger of sudden fatty degeneration and of necrosis and hemorrhage, due to the elimination of fibrinogen by the chloroform and inefficient coagulation: because fibrinogen is either formed wholly in the liver or is wholly dependent upon liver activity for its production.

8. The clamp can be left in situ, open, to control a possible secondary hemorrhage.

9. The instruments required for any liver surgery are in the usual hospital armamentarium.

DISCUSSION.

DR. LEONARD FREEMAN, Denver, in discussing this paper said that he had found one of the most reliable and simple methods of preventing hemorrhage in resection of the liver to be the use of strips of gauze, made from the ordinary small folded tapes of gauze found in every operating room. A pair of narrow forceps of sufficient length to reach through the liver substance, are plunged through the substance of the liver at the margin of the portion to be removed, seize two pieces of gauze and drag them through the hole in the liver: this procedure is repeated until the portion of liver to be removed is completely surrounded by gauze loops. The portion of each loop which lies beneath the liver substance has been cut in two and united with catgut in order to facilitate its removal. When these loops are tied down, not too tightly, the hemorrhage is completely controlled, and the portion of liver can be cut away like a piece of cheese. Another method employed in resecting large portions of the liver for multiple tumors, is by the use of two wires forming a wire clamp; this method is particularly applicable to where a more or less detached portion of liver is to be removed. The wires should be stiff and long enough when placed on each side of the tongue of tissue that their edges may project from the abdominal wound, and they can be bent in a gradual curve if necessary. In employing this method three or more catgut loops are dragged through the liver by means of a small pair of alligator forceps which seize the loops so that the free ends are all on one side; then one of the wires is inserted through the loops upon one side and the ends of the loops are tied over another wire on the other side, the wires then being brought firmly together, clamping the liver substance. At the end of a number of days the wires may be withdrawn, leaving the catgut loops in place to dissolve at will.

ACUTE PANCREATITIS WITH VERY EXTENSIVE FAT NECROSIS.

BY LUCIUS W. HOTCHKISS, M.D., OF NEW YORK CITY.

DR. HOTCHKISS reported a case which had some extraordinary features which served to emphasize the great difficulties of diagnosis and treatment in this condition. He described briefly the results of animal experimentation by Frugoni and Stradiotti, in Florence, to determine the exact chemistry of fat necrosis, as well as the mechanism of its origin and spread. The case which formed the basis of the paper was that of a man of 28 who was brought to Bellevue Hospital about 12 hours after an acute sudden seizure of intense abdominal pain and vomiting, but without any notable shock, and in which the diagnosis was very obscure for several days, by reason of the development of certain pulmonary conditions. On the fifth day a tentative diagnosis of acute pancreatitis was suggested, when a definite, rounded, tender mass developed in the epigastrium. He was transferred to the surgical ward and operation at once performed, opening anteriorly through the lesser omentum, which was the seat of extensive fat necrosis into the lesser sac, and liberating much bloody fluid under pressure. Eighteen days later, as the patient was failing, a second operation was done, opening the lesser sac through a left lumbar incision and setting free large pieces of necrotic fat and pancreas. This opening, together with the reopened anterior incision, established free through drainage, and although the patient was extremely weak, emaciated and anemic, he improved steadily and the posterior opening closed. A third operation, which had to be undertaken nearly a month later for a perforation of the stomach which suddenly developed and threatened to cause starvation of the already enfeebled patient, consisted in the

rapid suture of a small perforation in the posterior stomach wall just above the greater curvature. After this, convalescence proceeded uninterruptedly and the patient reported well and fat several months later.

DISCUSSION.

DR. JOSEPH C. BLOODGOOD, Baltimore, considered this an unusual case, there being but few cases of perforation of the stomach in acute pancreatitis recorded as recovering after operation.

DR. JOSEPH RANSOHOFF, Cincinnati, had had several cases of acute pancreatitis in his own practice and had seen several others in consultation, but in no one of these had the diagnosis been made before operation. He cited an interesting case of acute pancreatitis following a simple operation for the removal of the semilunar cartilage of the knee in an apparently healthy young man of 18. The result was fatal.

DR. MAURICE H. RICHARDSON, Boston, said that he had never had any success in operating on cases of acute pancreatitis, that all his recoveries had occurred in cases which had been left to Nature. He believes that operative interference in a suppurative condition involving the entire pancreas is almost certain to bring about a fatal result.

DR. JOHN B. DEAVER, Philadelphia, stated that internists frequently confused a condition of pancreatitis with effusion with that of pleuritic effusion, but in his opinion acute pancreatitis should always be considered when there was a history of sudden illness accompanied by acute epigastric tenderness and rigidity.

DR. FRED B. LUND, Boston, reported two cases of acute pancreatitis operated upon successfully.

DR. CHARLES A. PORTER, Boston, referred to two cases of acute pancreatitis. In one a diagnosis of acute intestinal obstruction had been made but a condition of acute hemorrhagic pancreatitis found: in this case an incision was made along the pancreas, a large amount of the viscus sloughed, but the patient eventually recovered. Because of persistent right-sided pain, however, a second operation was performed, when a putty-like accumulation was removed from the head of the pancreas; the patient later developed diabetes: he has been under observation for about five years. In the other case the condition of acute pancreatitis developed four days after a forceps delivery under ether; when the abdomen was opened an acute fat necrosis was found, and the woman died two days later.

DR. ROBERT G. LE CONTE, Philadelphia, stated that there had been two cases of acute pancreatitis with fat necrosis followed by recovery after operation at the Pennsylvania Hospital.

DR. HENRY B. DELATOUR, Brooklyn, reported a case very similar to that by the author, in a patient of 32 whom he saw on the 5th day after onset of symptoms; there was a decided bulging just above and to the left of the umbilicus; a median incision was made, and there being evidence of fat necrosis, on examination the cavity was found to extend back to the stomach. The anterior wound was lightly packed and a posterior left lumbar incision made, permitting the evacution of about a quart of thin purulent material. This wound was packed with zinc oxide gauze and a rubber drainage tube inserted. On the 5th day following operation there was a discharge of the contents of the stomach through the drainage tube, anterior drainage having been removed at the end of the 4th day. The patient recovered.

DR. GEORGE WOOLSEY, New York City, considered the essential feature in the treatment of these cases to be the drainage, saying that he never touches the pancreas and has had no trouble in any of his cases in obtaining a good result. He simply institutes drainage.

DR. FREDERIC KAMMERER, New York City, reported two cases of acute pancreatitis occurring in his practice during the last few months.

DR. ROBERT B. GREENOUGH, Boston, referred to two cases of mild pancreatitis occurring in his practice during the past winter, which recovered without operative interference. In both there were symptoms of intestinal obstruction high up. In one, Dr. Pratt made examinations of the urine and found acetone and diacetic acid, and also diastase, and he considered this satisfactory evidence of a condition of pancreatitis.

DR. EMMET RIXFORD, San Francisco, mentioned a case of pancreatitis in which the fat necrosis surrounded the mesenteric vein, causing complete obstruction of the same, the patient dying of congestion.

DR. SAMUEL J. MIXTER, Boston, cited a case showing how quickly fat necrosis may develop after the opening of the abdominal cavity when no evidence is discernible of this condition at the time of operation. In his experience the cases which recovered had usually been those in which the least amount of surgery was done, and he advocated the simple drainage by gauze.

DR. N. B. CARSON, St. Louis, mentioned the difficulty before operation of differentiating some cases of cholecystitis from those of acute pancreatitis, and referred to a case previously reported by him, in which a diagnosis of gallstones was made but which on exploration proved to be a condition of pancreatitis; drainage was instituted and the patient made a good recovery.

DR. HOWARD LILIENTHAL, New York, referred to six cases of acute pancreatitis operated upon by him with five recoveries. He considered that it was important to take into consideration the grade of the infection and the bacteriology of it as well as the extent of the enlargement of the pancreas.

DR. EDWIN MARTIN, Philadelphia, spoke of five cases of acute pancreatitis, in each of which the diagnosis was made by the medical attendant: three of these cases occurred in the practice of the late Dr. John H. Musser.

HEMMORRHAGE INTO THE PERITONEAL CAVITY CAUSED BY ACCIDENTAL RUPTURE OF THE OVARY.

BY ALEXANDER PRIMROSE, M.B., C.M., EDINBURGH; M.R.C.S., ENGLAND; TORONTO, CANADA.

As the result of a severe strain a blood cyst of the ovary may rupture and cause serious and even fatal hemorrhage into the peritoneal cavity. The author submits that such an accident is not only possible, but that it is probably of much more common occurrence than we imagine. The most common cause of intraperitoneal hemorrhage in women is dependent upon an extra-uterine gestation, and this fact has probably caused many authors to overlook other etiological factors in the production of such hemorrhages. The two cases now recorded by the author were not connected with pregnancy. In both in-

stances what appeared to be a normal Graafian follicle had ruptured as the result of an accidental strain. In one instance that patient lifted a heavy weight and the rupture immediately occurred. In the other case the patient had a violent attack of vomiting in the early stage of an acute appendicitis and this brought about a similar result. In both instances serious hemorrhage occurred into the peritoneal cavity and almost proved fatal in one of the patients. The sequence of events in the latter case was quite obvious. The patient had an attack of acute appendicitis two days before her monthly period was due, and a violent attack of vomiting had brought about rupture of a Graafian follicle. The hemorrhage into the peritoneal cavity had been slow and had shown no symptoms but was only discovered when the abdomen was opened for the removal of the appendix 12 hours afterwards. Had the patient been left until morning she not only would have run considerable risk from an attack of acute suppurative appendicitis, but she might have lost her life from hemorrhage.

SURGICAL DISEASES OF THE ABDOMEN AND UTERUS COMPLICATING PREGNANCY.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

Two things in the course of modern surgery have made this subject of especial importance to the medical profession; the first, is the great multiplication of abdominal operations by which conditions result interfering with pregnancy; and the second, is the perfection of operative technique by which operations within the abdomen even upon the uterus itself may be performed without interrupting the course of pregnancy. The surgical treatment of pathological conditions complicating pregnancy should be influenced, first by our knowledge of the great tolerance of the pregnant uterus to general anesthesia and to operative manipulation, sometimes of great extent. In the author's experience, pregnancy has never been interrupted in such operations as those for chronic appendicitis, acute cholecystitis, the removal of ovarian tumors, or that of uterine fibroids so large as to prevent the successful delivery of a visible child. Moreover, success has followed the freeing of a gravid uterus from a ventral fixation at four months.

Contary to his early convictions, the experience of recent years has made him confident of success in the imperative operations of abdominal surgery if undertaken early. In the beginning of our experience with appendicitis and with peritonitis of all kinds a frightful mortality prevailed during pregnancy. So great was the danger in acute appendicitis that the prophylactic operation appealed very strongly to experienced surgeons when there was the slightest evidence of a grumbling appendix. So, in other causes of peritonitis, it has seemed reasonable to remove that cause early in the pregnancy lest later the almost hopeless complication of a general peritonitis destroy mother and child in advanced pregnancy.

In support of the proposition to remove by operation such threatening conditions as acute appendicitis, acute cholecystitis and other sources of general peritonitis the evidence of personal experience was brought to show the splendid results of early intervention when the manipulations were trivial and brief and drainage was unnecessary.

A second group of cases is that of abdominal tumors not interfering directly with the uterus itself, but taking up abdominal space that cannot be spared by the full term uterus. Such operations as the removal of large ovarian cysts or other tumors have been followed by no interferences with the course of pregnancy. Not that these operations should be performed during pregnancy unless there is good reason for their performance, but in case of absolute necessity the surgeon in the great majority of cases need not fear an interruption to the pregnancy. To show the tolerance of the uterus as well as the difficulty at times of recognizing a pregnancy, unsuspected until its demonstration by laparotomy, instances were given in which it had been found impossible to say, with the uterus in the surgeon's hands, whether it was pregnant or enlarged by a new growth.

An important consideration in the paper was that of being always prepared, in a woman of child-bearing age, for an unexpected pregnancy. Pregnancy may be wholly unexpected but it should never be unsuspected. Many of the gravest emergencies and most difficult problems of decision are suddenly presented in the treatment of demonstrated but unexpected pregnancy. This fact should always be borne in mind in the diagnosis and prognosis of pelvic tumors in women of child-bearing age.

The most important consideration in this paper was the diagnosis, prognosis, and treatment of tumors of the pregnant uterus itself. The guiding idea was the wonderful tolerance of the pregnant uterus and its power of self-extrication from mechanical difficulties apparently unsurmountable. Evidence was given in support of this proposition that when in doubt a pregnant uterus presenting tumors that would apparently prevent parturition should be watched knife in hand. In several cases success followed the removal of a fibroid from the uterine body or cervix apparently hopelessly obstructing the parturient canal. Full term healthy children were delivered normally. In other cases fibroid tumors situated at or near the fundus did not interfere at all. One must not judge of the difficulties by the early situation of these tumors. An apparently large fibroid of early pregnancy is merged in the uterine body at term and may be hardly perceptible; in one instance no tumor could be felt after parturition. Instances were given in which conservatism under great apparent difficulties proved successful in normal parturition, and others in which surgical intervention under similar difficulties proved likewise successful. The writer's conclusions were as follows:

A pregnancy threatened by surgical conditions within the uterus should not be interrupted unless

1. It is clear that pregnancy cannot possibly go on.

2. For pregnancy to be allowed to continue it must appear that the life of the child is practically safe while the danger to the mother is slight.

3. To allow the pregnancy to continue uninterruptedly it must appear that at the last moment through intervention both mother and child may be saved by a Caesarian section or by an operation no more dangerous to the mother than would have been an early operation destructive to the child and saving to the mother.

4. To allow pregnancy to continue it must appear that the child can live without jeopardizing by delay the success upon the mother of a radical operation for malignant or other disease.

DISCUSSION.

Dr. Joseph C. Bloodgood, Baltimore, in discussing Dr. Primrose's paper said that some years ago he reported two cases of clinically acute appendicitis, in one of which was found free blood in the peritoneal cavity coming from the right ovary; hemorrhage was not excessive, nothing was done to the appendix, and the patient recovered. In the second case the hemorrhage was found coming from the fimbriated end of the Fallopian tube, the operation taking place during menstruation. In neither case was there any clinical suggestion of hemorrhage. Following this experience the speaker stated that he went over the histories of a number of cases and found that in the case of men he had never seen, or never recorded, hemorrhage in the peritoneal exudate. Up to the present time he had records of six cases of early appendicitis in women, some during the menstrual period, some in the interval, with considerable hemorrhage in the peritoneal cavity, but never to the degree reported by Dr. Primrose. In many cases the hemorrhage was but slight and there was no indication for the removal of ovary or tube.

Dr. Howard Lilienthal, New York City, reported a case bearing on both the papers under discussion. The patient, a woman of 32, married two months, had menstruated for the last time six weeks before he saw her, and then after an indiscretion in diet she vomited and became very faint. In a few hours another attack of faintness came on, followed by others at short intervals; she had all the symptoms of hemorrhage. Incision revealed a fibroid as large as a cocoanut attached to a pregnant uterus, and the peritoneal cavity full of blood. The fibroid was removed and the uterus sutured; the site from which the hemorrhage came could not be discovered. The patient made a good recovery, and there had been no miscarriage at the time of this report, three weeks after operation.

Dr. Archibald MacLaren, St. Paul, took exception to the usual idea that a certain time must elapse before a diagnosis of pregnancy can be made, believing that with fair probability it could be easily diagnosed at the first missed menstrual period. He thoroughly agreed with Dr. Richardson in his position regarding operations during pregnancy, and reported several instances where operative interference being necessary because of ovarian tumors, fibroid growths, and the freeing a ventral fixation, it resulted in no interruption to the course of pregnancy.

Dr. Lewis S. McMurtry, Louisville, in discussing Dr. Primrose's paper stated that in his opinion it was a very valuable communication because of the very prevalent idea that these hemorrhages are invariably due to ectopic gestation. He suggested that there was a possibility, however, in the cases reported, of the condition being the result of a tubal abortion.

Dr. Thomas W. Huntington, San Francisco, in discussing Dr. Richardson's paper, considered it a wise precaution to remove at an early date in pregnancy what he termed an "occult" appendix, that is one causing few symptoms but which every now and then gave sufficient evidence of its existence to warrant removal, considering that adhesions might result from such an appendix which might later be a source of serious difficulty.

Dr. Ellsworth Eliot, Jr., New York City, cited a case of a young woman 18 years of age supposed to be suffering from an attack of acute appendicitis in whom operation revealed no disease of the appendix but the peritoneum filled with blood, there being found a laceration of the right Fallopian tube near its fimbriated extremity. This extremity was amputated and miscroscopical examination gave no evidence of a tubal pregnancy.

Dr. Leonard Freeman, Denver, in this connection, referred to a case in the practise of one of his brother physicians, in which an athletic young lady in vaulting a fence experienced violent pain and collapse. Exploration demonstrated a Fallopian tube torn near its centre; ovaries, other tube, and uterus normal in every way with no sign of pregnancy.

Dr. John B. Deaver, Philadelphia, stated that he considered acute appendicitis more important in the female than in the male, and that he believed salpingitis often resulted from the condition of the appendix. It was his experience to see more cases of tubal abortion than of tubal rupture. In acute appendicitis during pregnancy, he advocated immediate removal of the appendix.

Dr. Richard H. Harte, Philadelphia, related the history of a case in connection with the paper by Dr. Primrose. The patient, a woman long past the menopause, was driving when she suddenly experienced violent pain on the right side; operation disclosed a large ovary, about twice the normal size, ruptured directly across, and the pelvis filled with blood. The ovary was removed, and after much examination microscopically a report was finally sent in of angiosarcoma. This case occurred over a year ago and up to the present time there has been no recurrence of the condition in the pelvic organs.

Dr. Robert G. LeConte, Philadelphia, detailed a case practically similar to that reported by Dr. Primrose, occurring in his practice a short time previously. The patient was admitted to the hospital with all symptoms of ruptured ectopic pregnancy; at operation a quart of clotted and fluid blood was removed; the right ovary was ruptured and had the appearance as if a Graafian follicle had existed filled with blood and been torn across, the vessel still bleeding; ovary was removed and tube left. The pathological report had not yet been received but it more closely resembled a laceration of the ovary than an extra-uterine pregnancy.

Dr. A. Vander Veer, Albany, reported a case in connection with Dr. Primrose's paper, in which a diagnosis of intra-peritoneal hemorrhage was made but operation not performed. The patient recovered slowly but completely, having an ice-bag applied and being kept in a condition of complete rest. He also referred, in connection with Dr. Richardson's paper, to a paper of his own on the subject of pregnancy complicated with inoperable cancer of the cervix, and said that it was his custom under such circumstances to advocate the emptying of the uterus.

Dr. Arpad G. Gerster, New York City, stated that he had twice seen a pregnant uterus removed, once supposedly for an ovarian tumor and once for a fibroid growth, and deprecated the making of such diagnoses, which seemed impossible in the late months of pregnancy. He added to Dr. Richardson's list of conditions requiring operation that of a twisted ovarian tumor on the right giving the symptoms of an acute appendicitis.

Dr. Charles A. Porter, Boston, in connection with Dr. Richardson's paper, called attention to the

following case. A woman of 30, married and pregnant two months, had pain, tenderness and fever, then increasing constipation and tenderness in the left iliac fossa. Visible peristalsis. Operation showed an almost complete obstruction of the cecum and a large intramesenteric abscess, probably a diverticulitis. Abscess was drained and a lateral anastomosis was done without excision. Patient has made a good recovery and so far, two months since operation, there has been no interference with the pregnancy.

DR. MAURICE H. RICHARDSON, Boston, in speaking regarding the case reported by Dr. Primrose, stated that he had frequently seen a ruptured Graafian follicle and had removed more than one ovary, considering it to be the cause of an intraperitoneal hemorrhage.

(*To be continued.*)

Book Reviews.

Manual of Human Osteology. By A. FRANCIS DIXON, M.B., Sc.D., University Professor of Anatomy and Chirurgery, Trinity College, Dublin. Illustrated with 178 figures, many in colors. New York: William Wood and Company. 1912.

This admirable treatise on osteology is intended for the practical use of students engaged on the actual study of the bones. The Basle anatomic nomenclature is used throughout, the names being printed in heavy black type. The more familiar English terminology, however, is also given in italics, enabling readers to become accustomed to the equivalents. The excellent illustrations are drawn by Mr. J. T. Murray, and contribute much to the value of the book. To the systematic descriptive consideration of the skeleton, occupying 262 pages, are appended chapters on the composition, shape, structure, and development of bones, and a compendious index. The work is one of merit, and should be welcomed by students and by teachers of anatomy.

The Chemic Problem in Nutrition. (Magnesium Infiltration). A Sketch of the Causative Factors in Disorders of Nutrition as Related to Diseases of the Nervous System. By JOHN AULDE, M.D., formerly assistant physician, out-patient department, Jefferson Medical College Hospital; Demonstrator of physical diagnosis and clinical medicine. Medico-Chirurgical College. Illustrated with four plates. Philadelphia, John Aulde, M.D. 1912.

The author uses a few well known facts as a basis for his theory and then gives his fancy free play and unfolds the most minute activities of the cells like a moving picture though their true agency in metabolism is only surmised by our greatest scientists and their secret remains locked to most medical men. The book reads very much like "Science and Health" which is not science though it may produce health. The following sentence indicates the wild range the author allows his fancy: "Christian science, psychotherapy and the more recent 'Emmanuel' movement, all depend for success upon dirigation, a mental psychologic process, by which alkalescence is secured through 'nerve stimulus' brought about or initiated by introspection." According to the author everything from summer complaint of children to typhoid spine is due to the excess of acid and consequent replacement of lime by magnesium salts; even the innocent chalk mixture which on account of its insolubility is absorbed, if at all, in most minute portions, and acts locally, is called upon to furnish proof for his theory in that the lime contained replaces the magnesium in its turn driven out of the cells. In all treatment the author "re-establishes the physiologic equilibrium upon a normal basis in respect to chemic reaction." In other words the work is a treatise on "psychological chemistry" which is neither psychology nor chemistry.

State Board Examination Questions and Answers of the United States and Canada. Fourth edition. New York: William Wood and Company. 1912.

Like its predecessors, this volume claims to be "a practical work giving authentic questions and authoritative answers in full that will prove helpful in passing state board examinations." The material is reprinted from the *Medical Record.* In this edition, for the first time, all answers are given in full instead of occasionally by reference to text-books. All quotations from text-books are duly credited. Despite this completeness of statement, the fourth edition has only 812 as against 819 pages in the third. This is accounted for by the otherwise unexplained omission, in the fourth edition, of the examination papers of Arizona, Delaware, Florida, Idaho, Minnesota, Montana, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Washington, and British Columbia. The volume should be of great service to those engaged in preparing themselves or others for state registration in medicine.

Selected Papers on Hysteria and Other Psychoneuroses. By PROF. SIGMUND FREUD. Second, enlarged edition. Translated by A. A. Brill, M.D. 8vo., pp. x, 215. New York: The Journal of Nervous and Mental Diseases Publishing Company. 1912.

This translation of various articles by Freud appeared about three years ago and was reviewed in this JOURNAL.[1] This second edition is unchanged except for the addition of an article on "Wild Psychoanalysis" and another on "The Future Chances of Psychoanalytic Therapy," which present some of the author's later contributions.

[1] Vol. clxii, p. 222.

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STATUS OF THE BALKAN WAR.

THE peace conference between representatives of Turkey and of the allied Balkan states has now been in session at London for nearly three weeks. Demands and conditions on both sides have been formulated and discussed; certain points of settlement have been determined, some concessions have been made, but various difficulties and disagreements have prevented the establishment of definite terms. Meantime an armistice has prevailed at the seat of war, except in the case of the Greeks who have continued to conduct hostile maritime operations against the Turkish coast and its neighboring islands. In spite of their action, however, and of the threatening attitude assumed by Austria towards the Serbs, it appears that on the whole the prospect is brightening, and that probably satisfactory terms of settlement will be ultimately arranged without more warfare and without involving quarrel among the great nations of Europe.

Meanwhile, during the cessation of hostilities, the opposing armies remain encamped in territory already occupied; and although their situation is more tolerable than before, the advance of the severe Balkanic winter must soon measurably augment their hardships. The same cause, however, should also put an end to the epidemics of cholera which are still in progress. Report from Constantinople on Dec. 7 stated that in the preceding three weeks over 1000 cases of the disease had occurred in that city and at Stamboul, with a mortality of 50 per cent. Report from Vienna to the *British Medical Journal* on Dec. 14 describes the situation as follows:

"The outbreak of cholera in the Balkans has given rise to considerable anxiety throughout Europe, but nowhere is it more keenly felt than in Austria-Hungary, where the business relations now interrupted by the war will be resumed directly hostilities cease, and must necessarily expose the whole country to infection. The deplorable lack of sanitation and complete disregard of prophylactic measures in the affected districts, combined with the decreased vitality of the population after an exhausting campaign, have caused the Austrian Board of Health to impose a strict quarantine on all travellers arriving from the Balkan States and Asia Minor, especially those who have come by sea. A special Cholera Committee, composed of the head of the Vienna Serum-therapeutic Institute, the well-known Professor Kraus, and four of his assistants, and the pathologist, Dr. Kannitz, Professor Weichselbaum's assistant, has been sent to Sofia for the purpose of investigating the epidemic at close quarters; and as plague and typhoid are also rife it has been provided with large quantities of Haffkine's serum. It has been ascertained through the Austrian diplomatic agents in the Turkish provinces of Asia that cholera has broken out in Syria and Aleppo, whilst the yearly pilgrimages to Mecca have imported both cholera and plague from India and China, and both diseases are raging fiercely in Persia and the deserts of the Kirghiz Steppe. It should be added that the Turkish Government has become so much alarmed that a formal application has been made to Vienna for medical volunteers whose sole duty will be to check the spread of cholera in the Turkish army."

It is a striking and encouraging commentary on the real progress of modern civilization that the scientific and humanitarian work of relief thus goes on simultaneously with the barbarism of war, and is even supplied and administered by those who, not many centuries ago, would have either held aloof or taken a partisan stand in the conflict.

Other nations besides Austria have been active in medical relief. Very large Red Cross expeditions have been sent out also by Italy, France, Germany, and Russia. A correspondent of the *British Medical Journal* states that on Dec. 7 the British Red Cross Mission at the seat of war comprised 213 persons, exclusive of servants.

"The first European Red Cross party to reach the seat of war was the British Red Cross unit for Montenegro. This party, under Dr. Bradford, is established at Antivara, the seaport town of Montenegro. Here a base hospital was started on October 20 in a disused tobacco factory. This hospital is quite full, and during the armistice more wounded will arrive. Over

500 patients have already been dealt with. In addition to the hospital, dressing stations have been established at Rjeka, St. Nikola, and San Giovanni di Manua. Owing to the bad state of the roads most of the wounded arrive by water and the wounds are septic.

The Servian units of the society were last heard of at Uskub where a great many wounded had accumulated. These units had proceeded straight to the front on arrival. The Bulgarian units are also at the front, and are at the moment out of reach of communication. They were last heard of at Kirk Kilissi, but they have probably pushed forward with the advancing column.

The Greek units of the society are in Salonica, which town they entered immediately after its capitulation. They are established in a derelict Turkish hospital, and have had a great mass of sick and wounded to deal with. This hospital is designed for 250 patients, but at the date of the last report (November 22) it contained 585 sick and wounded. The extra patients were lying in the passages, on the landings, and in the wall spaces. A Rest Camp is being established for such patients as are only suffering from exhaustion and starvation. The weather is unfavorable and, indeed, severe. The Duchess of Sparta applied to the society to send out six female nurses at Her Royal Highness's expense. These nurses, at first stationed at Athens, are now at Salonica, where they are doing excellent work.

"The Red Cross Mission to Turkey has been much occupied. Its base hospital is in the Fine Art School at Constantinople on Seraglio Point. Minor hospitals for the sick have been established near the Chatalja lines. There has been much cholera and much dysentery, but the cholera is rapidly declining, and there is every hope that the epidemic is now practically over. Among the Red Cross staff at Constantinople is an officer of the Indian Medical Service who has had a large experience of cholera, together with a bacteriologist especiallly versed in tropical diseases."

Americans, meantime, have not been inactive, but are doing their full share in the work of relief. The total of the American Red Cross Fund amounts to about $40,000, of which Massachusetts has contributed $6,638. Report from Constantinople on Dec. 11 said:

"The Americans seem to be the only persons assisting in the interior. Dr. W. S. Dodd and his wife, whom the Ambassador and Mrs. Rockhill brought to Constantinople specially for the purpose of organizing a hospital for the wounded, are now able to leave the hospital entirely in the hands of the British workers with whom they have been associated, the number of British Red Cross attendants having been augmented recently. Dr. and Mrs. Dodd have returned to Konia, which is their mission field, with a large sum of money at their disposal to aid the refugees in tiding over the winter.

"The San Stefano cholera camp, in which a dozen British attendants are now engaged in addition to several Austrian sisters of charity and others, is being financed by American Red Cross funds. The ambassador has received from Washington an extension of Surgeon Major Ford's leave and he will remain another month and continue his labors in the cholera camp, which remains in a horrible condition. The little band of foreigners are able to care for only a few hundred, while the camp, despite the death roll of thousands, still contains several thousand patients, and new contingents are constantly arriving."

Whatever the political outcome of the Balkan War, it appears that, like most other recent great wars, it will at least have afforded opportunity for the demonstration of many of the Christian virtues, and perhaps also for scientific medical practice, study, and progress.

THE RELATION OF THE BORDET-GENGOU BACILLUS TO THE LESION OF PERTUSSIS.

IN the issue of the JOURNAL for Nov. 21, 1912, [Vol. CLXVII, p. 740], we commented editorially on the recent important research work of Drs. Mallory and Hornor on "The Histologic Mechanical Lesion of Pertussis." In conclusion we said: "It remains definitely to identify Mallory's bacillus with that of Bordet and Gengou, or to obtain the true causal agent [of pertussis] and test it in the same manner. Experiments to this end are now in progress."

This supplementary experimental investigation has now been completed by Mallory, Hornor, and Henderson, and the entire results of the authors were presented at the November meeting of the Boston Society of Medical Sciences. The course of these further experiments was essentially as follows:

First, a puppy was inoculated intratracheally with sputum from patients in the acute stage of whooping-cough, with the result that after six weeks numerous minute bacilli, corresponding morphologically in every way with those previously demonstrated as occurring in human tissues during the disease, were found between the cilia of many of the epithelial cells lining the puppy's trachea. Second, after repeated failures, pure cultures of this organism were

finally obtained on potato-blood-agar both from the sputum of human patients with pertussis and from an infected puppy. These bacilli, which correspond in every way with those of Bordet and Gengou, are described as Gram-negative and of about the size of influenza bacilli. Their colonies possess a peculiarly tenacious, mucoid character, which probably explains their adhering to the cilia of the cells and matting them together. Third, with the pure cultures thus obtained, the first inoculation experiments were repeated with puppies, rhesus monkeys, rabbits, and guinea-pigs. From the animals thus successfully inoculated, the organism was reobtained in pure culture and was often found between the cilia of the epithelial cells. Fourth, several puppies, successfully infected by contagion, showed the typical lesion. The chief symptoms of these puppies were sneezing and spasmodic cough. The only symptom shown by infected rabbits was emaciation. Inoculation was found to be unfailingly and most easily induced by slow injection through the nose. The lesion in the infected animals corresponded in every way with that in man but the number of organisms between the cilia was rarely as great.

These important experiments, therefore, which will be described in full in an article to appear in a future number of the *Journal of Medical Research*, not only demonstrate the primary essential lesion of pertussis and the relation of the causal agent to it, but also complete the demonstration, in accordance with Koch's law, that the Bordet-Gengou bacillus is the cause of whooping-cough. Moreover, they clear the way for further investigation in search for a vaccine or antitoxin which may be of use in the treatment of this very serious infection.

Such a piece of research, logically and successfully carried to completion, is not only a credit to its authors and to the Boston profession, but is a valuable and beneficent contribution to the progress of medical science in the knowledge and control of human disease, suffering, and death.

SECTION FOR ORTHOPEDIC SURGERY IN THE AMERICAN MEDICAL ASSOCIATION.

At the meeting of the American Orthopedic Association at Atlantic City last June, a project was initiated and formulated for the establishment of a new section in the American Medical Association, to be devoted to the study of orthopedic surgery. Application to this effect was made and granted, and Dr. Newton M. Shaffer, of New York, was elected president and Dr. John Ridlon, of Chicago, secretary of this section for the ensuing year.

The formation of the new section for orthopedic surgery should be an important benefit to the medical profession. It is intended primarily for the many able men who, though not devoting their entire time to the promotion of orthopedic knowledge, are yet making contributions thereto, and are interested in its progress. The first meeting of the new section will be held next June at Minneapolis, Minn.

An editorial in the November number of the *American Journal of Orthopedic Surgery* calls attention as follows to the present importance of this new establishment:

"The coming year is one of great significance to orthopedic surgeons. There is to be a subsection for orthopedics in the section on surgery at the International Medical Congress in London in August; our own annual meeting with the Congress of Physicians and Surgeons will be held in Washington in the spring; and the American Medical Section for Orthopedics in Minneapolis, as already stated."

Orthopedics is a division of great and growing importance in the general field of surgery, and the formation of the orthopedic section in the American Medical Association marks a significant step in its progress. The American Orthopedic Association, organized in 1887, will remain the chief and principal society of specialists in this branch. The new section will aim to correlate with their work the orthopedic contributions of other surgeons throughout the country, and to make more accessible to practitioners at large the active advances in this department of surgical science.

APPOINTMENT OF DR. ALSBERG.

The recent appointment, announced in another column of this issue of the Journal, of Dr. Carl L. Alsberg to succeed Dr. Harvey W. Wiley as chief of the bureau of chemistry of the United States Department of Agriculture, is a worthy selection for an important post. Dr. Alsberg is a graduate of Columbia University and of the New York College of Physicians and Surgeons. From 1902 to 1908 he was a teacher in the department of biological chemistry at the

Harvard Medical School, and since that time has been connected with the poisonous plant laboratory of the bureau of plant industry at Washington, D. C. In his new position he will have particular charge of the administration of the pure food and drug laws of the United States, and in that capacity will have abundant opportunity to show himself a fearless and efficient public servant.

MEDICAL NOTES.

TYPHOID FEVER AT A GERMAN ARMY POST.—Report from Hanow, Prussia, on Dec. 18 states that typhoid fever is epidemic among the German troops quartered in barracks at that city. There are said to have been 170 cases and two deaths of the disease.

BONUS FOR BIRTHS IN AUSTRALIA.—Report from London on Dec. 22 states that the Australian federal government has recently enacted legislation providing a bonus to parents of $25 for every birth registered in the commonwealth, unless the mother be a colored native.

AN INDIAN CENTENARIAN.—Mrs. Maggie Adams, an Indian squaw, who died recently at Garibaldi, near Bay City, Ore., was locally reputed to be 113 years old.

MENINGITIS IN A GEORGIA TOWN.—Report from Midville, Ga., on Dec. 24 states that there have recently been 12 deaths from epidemic meningitis in that town, and that 9 cases of the disease still remain under treatment. Strict quarantine is being maintained by armed deputies stationed on every highway.

BOSTON AND NEW ENGLAND.

FREE HOSPITAL FOR WOMEN.—The recently published thirty-seventh annual report of the Brookline Free Hospital for Women records the work of this institution for the year ending Oct. 1, 1912. During this period 571 patients were admitted to the hospital, upon 490 of whom 1414 operations were performed. In the out-patient department there were 6049 consultations and 1050 new cases. During the past two years 25 pupil candidates have been graduated from the training-school for nurses.

BOSTON MEDICAL LIBRARY.—The recently published thirty-seventh annual report of the Boston Medical Library records the progress of this institution for the year ending Nov. 12, 1912. During this period 3212 new volumes, and 2909 pamphlets were added to the library, making a total on Oct. 31, 1912, of 75,022 volumes and 55,386 pamphlets. There are 6671 volumes in the duplicate library, and 632 periodicals are on file in the reading room. The attendance of readers during the year was 12,187, an increase of 211 over the previous year. The collection of medals now numbers 3661 specimens. The total membership of the library is 663.

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.—Next Sunday afternoon, Jan. 5, at four o'clock will be given at the Harvard Medical School the first of this year's series of free public lectures on medical subjects offered by the Faculty of Medicine. The complete schedule of this course of lectures is as follows:

Jan. 5. Dr. Charles W. Eliot. Preventive medicine in relation to industrial and international concord.

Jan. 12. Dr. John Lovett Morse. The care and feeding of young children.

Jan. 19. Dr. Charles J. White. Leprosy and its care in Massachusetts.

Jan. 26. Dr. Mark W. Richardson. What the State Board of Health is doing to protect the health of the citizens of Massachusetts.

Feb. 2. Dr. Edward H. Nichols. The sexual instinct—its abuse and control. (To men only.)

Feb. 9. Dr. Hugh Cabot. The responsibility of the community for the prevalence of venereal disease.

Feb. 16. Dr. David L. Edsall. Dangerous effects of patent medicines.

Feb. 23. Dr. Edward H. Bradford. Fresh air, exercise, and physical condition.

March 2. Dr. Paul Thorndike. The bladder ailments of men in later life. (To men only.)

March 9. Dr. Myles Standish. Ophthalmic catastrophies.

March 16. Dr. George L. Walton. How to cultivate emotional poise in an emotional age.

March 23. Dr. Howard T. Karsner. The rise of experimental medicine.

March 30. Dr. William P. Graves. Tumor diseases peculiar to women. (To women only.)

April 6. Dr. E. H. Place. The management of scarlet fever and measles.

April 13. Dr. E. E. Southard. The new State Psychopathic Hospital.

April 20. Dr. Clarence J. Blake. The effect of occupation on the hearing power.

April 27. Dr. Franklin S. Newell. The hygiene of pregnancy. (To women only.)

May 4. Dr. Howard A. Lothrop. Treatment of some emergencies of a surgical nature.

May 11. Dr. Charles A. Brackett. The preservation of the natural teeth.

May 18. Dr. S. B. Wolbach. Future lines of investigation of infectious diseases.

Copies of this announcement and further information in regard to any of the lectures may be obtained by addressing The Chairman of the Committee on Public Lectures, The Harvard Medical School, 240 Longwood Avenue, Boston.

Current Literature.

Medical Record.

December 14, 1912.

1. Lederle, E. J. *The Sanitary Control of Local Milk Supplies Through Local Official Agencies.*
2. Kelsey, C. B. *Local Anesthesia in Operations on the Rectum.*
3. Allport, F. *Railroad Hospital Associations.*
4. *Fisher, J. W. *Fuller Report Upon the Use of the Sphygmomanometer in Examinations for Life Insurance.*
5. Robinson, B. *Heart Murmurs and Patients.*
6. Reynolds, W. S. *Report of a Case of Ureteral Calculus Treated with Oil Injections.*
7. Wood, A. *A Safety Screw Driver and Screws for Lane Plates.*

4. Fisher presents a supplementary report on the use of the sphygmomanometer in examinations for life insurance. His new statistics strongly confirm his deductions of a year ago and eminently justify the rejection of applicants in whom blood pressure above 150 mm. is the only impairment found. [L. D. C.]

New York Medical Journal.

December 14, 1912.

1. Clark, L. P. *The Prevention of Epilepsy.*
2. *Novak, E. *Overeating as a Cause of Acute Appendicitis.*
3. Voorhees, I. W. *Labyrinthitis and Cerebellar Abscess.*
4. Duncan, C. H. *Autotherapy.*
5. Sautter, A. C. *Defective Vision in Children.*
6. Stanton, E. M. *The Prognosis in Gall-stone Disease.*
7. Warren, G. W. *Albumin Determination.*
8. Barnes, H. L. *Pneumonia in Open-air Sanatoria.*
9. White, J. M. *Simple Perineal Enucleation of the Prostate Gland.*
10. Murphy, J. B. *Surgery of the Bones and Joints.*
11. Smith, R. R. *A Description of the Enteroptotic Woman.*

2. Novak discusses the etiology of appendicitis and makes the statement that a considerable number of cases are caused by overeating. Overdistention of the stomach may compress the superior mesenteric vessels lying immediately behind the stomach, and such compression interferes with intestinal circulation. The first effect of such a circulatory disturbance is the excitation of more or less violent peristalsis in the intestine and this explains the pain usually felt in the epigastrium at the onset of an attack. Another effect of this disturbance of circulation is exerted upon the appendix itself, the resistance of which is reduced to such an extent that it often falls a prey to the action of the ever present colon bacillus and other intestinal organisms. [L. D. C.]

Journal of Experimental Medicine.

October 1, 1912.

1. Lewis, T. *Fibrillation of the Auricles; Its Effects Upon the Circulation.*
2. Ingebrightsen, R. *Studies Upon the Characteristics of Different Culture Media and Their Influence Upon the Growth of Tissue Outside of the Organism.*
3. *Fraser, J. *The Relative Prevalence of Human and Bovine Types of Tubercle Bacilli in Bone and Joint Tuberculosis Occurring in Children.*
4. Sprunt, T. P., and Luetscher, J. A. *Acute Vascular Lesions in Mice Following Injection of Pneumococci.*
5. Erlanger, J. *Sinus Stimulation as a Factor in the Resuscitation of the Heart.*
6. Gay, F. P., and Robertson, T. B. *The Antigenic Properties of Split Products of Casein.*
7. Gay, F. P., and Robertson, T. B. *The Antigenic Properties of a Protein Compounded with Casein.*
8. Jobling, J. W., and Bull, C. G. *Studies on Ferment Action.*
9. Craster, C. V. *Conditions Governing the Growth of Displaced Normal Tissue.*
10. Stewart, G. N. *Testing for Epinephrin (Adrenalin) in Blood*
11. Hanes, F. M. *Lipoid Metabolism in the Developing Chick and Its Relation to Calcification.*
12. Bullock, F. D., and Rohdenburg, G. L. *Cell Prolification and Parasites in Rats.*
13. Park, E. A. *Observations with Regard to the Action of Epinephrin on the Coronary Artery.*
14. Janeway, T. C., and Park, E. A. *The Question of Epinephrin in the Circulation and Its Relation to Blood Pressure.*
15. Park, E. A. *The Physiological Action of Epinephrin on the Bronchi.*
16. *Bass, C. C., and Johns, F. M. *The Cultivation of Malarial Plasmodia.*

3. Fraser studied the material obtained by operation from 70 cases of bone and joint tuberculosis occurring in children; a large proportion of these cases showed the bovine tubercle bacillus; in the cases in which the human bacillus was present, the history as a rule showed the possibility of a direct infection from patient to child. Fraser thinks that there can be no doubt that the milk was the medium through which the infection occurred in the cases due to bovine bacillus.

16. Bass and Johns were able to cultivate malarial plasmodia outside of the body, by means of a special technic. The important feature of the cultivation is red blood cells and the writers found no evidence that malarial plasmodia can be grown outside of these cells. They cultivated one or more generations of the aestivo-autumnal parasites from each of 29 patients and carried one culture through four generations. They also cultivated the tertian parasites six times. The asexual cycle of these parasites cultivated in vitro does not differ from the same cycle growing in vivo; the sexual cycle was not cultivated. [R. I. L.]

November 1, 1912.

1. *Lamar, R. V. *Chemo-Immunological Studies on Localized Infections.*
2. Sprunt, T. P., Colwell, H. S., and Hagan, H. J. *Pigment Formation in the Liver During Autolysis and Its Relation to the Pigmentation of Hemochromatosis.*
3. Oppenheimer, B. S., and Oppenheimer, A. *Nerve Fibrils in the Sino-Auricular Node.*
4. Noguchi, H. *Cultivation of Spirochaeta Gallinarum.*
5. Woglom, W. H. *The Duration and Extent of In-*

duced Resistance toward Tumor Transplantation in Mice.

6. COLE, R. *Toxic Substances Produced by Pneumococcus.*
7. DOCHEZ, A. R. *The Presence of Protective Substances in Human Serum During Lobar Pneumonia.*
8. *DOCHEZ, A. R. *The Occurrence and Virulence of Pneumococci in the Circulating Blood During Lobar-Pneumonia and the Susceptibility of Pneumococcus Strains to Univalent Anti-Pneumococcus Serum.*
9. DOCHEZ, A. R. *Coagulation Time of Blood in Lobar-Pneumonia.*
10. PEABODY, F. W. *The Carbon Dioxide Content of the Blood in Pneumonia.*

1. Lamar working with experimental pneumococcus meningitis in monkeys, which is invariably fatal in the untreated animal, found that a mixture of sodium oleate, immune serum and boric acid exerted regularly a more powerful action than immune serum alone and not only prevented the occurrence of the infection but also in repeated doses led often to the complete recovery of the infected animal.

8. Dochez studied the bacteriology of the blood in 37 cases of lobar-pneumonia. He was able to isolate the pneumococcus from the blood in approximately 50 per cent. In general, the course of the infection was more severe in individuals from whose blood the pneumococcus could be isolated. Seventy-seven per cent. of the patients with positive blood-cultures died and 79 per cent. of the patients with negative blood-cultures recovered.

[R. T. L.]

DECEMBER 1, 1912.

1. EPSTEIN, A. A. *A Contribution to the Study of the Chemistry of Blood Serum.*
2. *COHN, A. E. *On the Differences in the Effects of Stimulation of the Two Vagus Nerves on Rats and Conduction of the Dog's Heart.*
3. PEARCE, R. M., AUSTIN, J. H., AND MUSSER, J. H., JR. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
4. KARSNER, H. T., AND PEARCE, R. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
5. PEARCE, R. M., AND AUSTIN, J. H. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
6. FOLIN, O., KARSNER, H. T., AND DENIS, W. *Nitrogen Retention in the Blood in Experimental Acute Nephritis of the Cat.*
7. MANDELBAUM, F. S. *A Contribution to the Pathology of Primary Splenomegaly (Gaucher Type) with the Report of an Autopsy.*
8. CHURCHMAN, J. W., AND MICHAEL, W. H. *The Selective Action of Gentian Violet on Closely Related Bacterial Strains.*
9. OPIE, E. L. *Lymph Formation and Edema of the Liver with Experimental Nephritis Produced by Cantharidin.*
10. HOWARD, C. W., AND CLARK, P. F. *Experiments on Insect Transmission of the Virus of Poliomyelitis.*
11. JOBLING, J. W., AND STRAUSE, S. *Studies on Ferment Action.*

2. Cohn working with dogs found that there was usually a great qualitative difference in the action of the two vagus nerves on the heart.

[R. I. L.]

JOURNAL OF INFECTIOUS DISEASES.

SEPTEMBER, 1912.

1. SEDGWICK AND MACNUTT. *Is Typhoid Fever a Rural Disease?*
2. RUEDIGER. *Sporotrichosis in the United States.*
3. SIMONDS AND KENDALL. *A Simple Method for Isolating Anaerobes in Pure Culture.*
4. *ROSENAU. *Experimental Infectious Endocarditis.*
5. *GURD. *Variations in the Complement Content of Serum and Plasma.*
6. ROSENAU. *On the Nature of the Toxic Substances from Pneumococci.*
7. JACKSON. *Experimental "Rheumatic Myocarditis."*
8. MORSE. *A Study of the Diphtheria Group of Organisms by the Biometric Method.*
9. ROSENAU. *On the Toxicity of Broth, of Pneumococcus Broth Culture Filtrates and on the Nature of the Protrolytic Enzyme Obtainable from Pneumoccoci.*

4. Rosenau's original view of the causal factor of endocarditis being an attentuated pneumococcus receives additional support in this paper. Furthermore he shows that the bland cases are produced by organisms of this variety, of a low degree of virulence; that the severe and malignant forms are the results of infection grafted on a previously diseased valve. The original infection is cared for by the rich capillary structure of the valve. This becomes sclerosed by one attack, so that a second infection, even with the same organism, meets no resistance. The result of this process is the formation of vegetation with ulceration, with the well known train of dangerous and generally fatal sequelae.

5. Gurd shows that the amount of complement developed in the serum of different animals is nearly absolutely constant in amount. Variations from this figure are due to differences of temperature which tend to inactivate the serum. The author believes that this element exists in the body not as complement but as a substance, which he calls "complementogen," which is activated to complementary activity by some of the body fluids or cells. He recommends heating the serum to 37° C. for one-half to one hour and placing it at 2° C. If this is followed the serum remains active for 24 to 48 hours.

[L. H. S.]

NOVEMBER, 1912.

1. SCHORER. *Experimental Study of Milk.*
2. ROSENAU. *A Study of Streptococci from Milk and Epidemic Sore Throat, and the Effect of Milk on Streptococci.*
3. TUNNICLIFF. *The Content of Antibodies of Normal Human Colostrum and Milk.*
4. WELLS AND HEIDENBURG. *Studies in the Biochemistry and Chemotherapy of Tuberculosis.*
5. *CORPER. *Intravitam Staining of Tuberculous Guinea-pigs with Fat-soluble Dyes.*
6. WELLS AND CORPER. *The Lipase of Bacillus Tuberculosis and Other Bacteria.*
7. *HARRIS. *The Production of Antirabic Immunity by Intraspinal Injections of Virus.*
8. ANDERSON AND GOLDBERGER. *Natural and Induced Immunity to Typhus Fever.*
9. NAVY, PERKINS, AND CHAMBERS. *Immunization by Means of Cultures of Trypanosoma Lewisi.*
10. ARKINS. *The Influence of Certain Oxidizing Agents. (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytins.*
11. MORSE. *The Application of the Complement Fixation Reaction to the Diphtheria Group of Organisms.*
12. KING AND WILSON. *Studies in Hog Cholera.*
13. STEINHARDT, POOR AND LAMBERT. *The Production in Vitro in the Normal Brain of Structures Simulating Certain Forms of Negri Bodies.*
14. SURFACE. *Bovine Infectious Arthritis, Epizootic Among Guinea-pigs.*
15. GLOWSET. *Intra-leukocytic Bodies in Scarlet Fever.*
16.* TUNNICLIFF. *Observations on the Phagocytic Activity of the Leukocytes in Measles.*
17. ROSENAU AND ARKIN. *The Action on Dogs of the Toxic Substance Obtained from Virulent Pneumococci and Pneumonic Lungs.*

5. Fat dyes failed to stain the fat found in tubercles in the living guinea-pig. This the author considers as additional support to the old theory that this fat is not deposited from the fat intake of the subject, but is the result of action on the intracellular fats of the tissues forming the tubercle. In no instances were the fatty envelopes of the tubercle bacillus stained by the action of the injected dyes.

7. Harris has produced immunity against rabies in rabbits rapidly by single intraspinal injections of non-infectious desiccated virus. The material used for this result is not affected by age and may be stored in quantities.

16. The leukopenia and diminution in phagocytic activity of the leukocytes to streptococcus, staphylococcus and the tubercle bacillus, may account for the frequency of secondary infection in measles.

[L. H. S.]

THE LANCET.

DECEMBER 7, 1912.

1. MOULLIN, C. M. *The Bradshaw Lecture on the Biology of Tumors.*
2. SOLLY, R. V. *Some Cases of Pyrexia.*
3. WALLACE, A. T. *The Suppression of the Convulsion in Eclampsia.*
4. *STRONG, G. R. *Eight Cases of Osteomyelitis of the Spine.*
5. BANGOR, H. *Epithelial Proliferation Induced by in Injection of Gas Works Tar.*
6. AYTOUN, J. H. *Acute Inversion of the Uterus.*
7. JACOB, F. H. *Case of Extensive Fibro-Angioma Treated by Radium.*
8. LYONS, W. C. *A New Form of Tuberculin (T. F.) Some Notes on Its Diagnostic and Therapeutic Value.*
9. GAYFORD, C. *An Interesting Case of Arrested Tuberculosis.*

4. Strong reports eight cases of osteomyelitis of the spine. He believes that if all cases of this nature were more carefully investigated instead of having at once made on them the diagnosis of tuberculosis, there would be more cases of osteomyelitis and fewer of tuberculosis.

[J. B. H.]

THE BRITISH MEDICAL JOURNAL.

NOVEMBER 30, 1912.

1. *LAMBOTTE, A., LANE, W. A., LUCAS-CHAMPIONNIERE, J., STEINMANN, F., ET AL. *Report of the Committee on Treatment of Simple Fractures.*
2. BASTIAN, H. C. *Remarks on Further Experiments Concerning the Origin of Life.*

1. The greater part of this number of the *British Medical Journal* is devoted to an elaborate report of a committee appointed to consider the treatment of simple fractures. This committee reports as follows:

(1.) Non-operative treatment of the shafts of the long bones in children under fifteen years, except that of both bones of the forearm, gives good results. Operative treatment gives equally good results. In comparison with non-operative results in children, such results in adults are not satisfactory, the older the patient the worse the result.

(2.) The most certain way to obtain a good functional result is to obtain a good anatomical result; operative measures which secure absolute approximation and fixation of the fragments is the surest way to obtain such results. Operative treatment should not be regarded as a method to be employed in consequence of failure of non-operative measures. Operative treatment requires much skill and experience. The mortality is so small as to be disregarded, for surgeons and practitioners without such skill and experience non-operative measures are likely to remain for some time the more safe and serviceable. These conclusions are elaborated in a series of appendices in which various methods are explained and illustrated by charts, diagrams and plates. [J. B. H.]

DECEMBER 7, 1912.

1. *JONES, R. *Presidential Address on the Present Position of Treatment of Fractures.*
2. MOULLIN, C. M. *The Bradshaw Lecture on the Biology of Tumors.*
3. KEITH, A. *The Functional Nature of the Cecum and Appendix.*
4. POWER, D'A. *Remarks on Recent Progress in Connection with Syphilis.*
5. GOODING, S., AND ETHERIDGE, F. L. *A sequel to Novocain Injection.*

1. This is a long paper in which Jones reviews what he considers to be the present treatment and the best treatment of fractures. The article is long, covering fractures of all kinds. There are many excellent plates and illustrations. For those interested in this subject, this paper should be of great value.

[J. B. H.]

THE PRACTITIONER.

DECEMBER, 1912.

1. *TAYLOR, F. *Sleepiness.*
2. HERMAN, G. *On the Teaching of Operative Surgery.*
3. *JONES, R. *The Relation of Epilepsy to Insanity and Its Treatment.*
4. WINGRAVE, W. *Bacilluria and Pyuria.*
5. MCDONAGH, J. E. R. *The Treatment and Pathology of Venereal Diseases as We See Them Today.*
6. *STEPHENSON, G. *On Cases of Eye-Strain Simulating Grave Organic Disease of the Central Nervous System.*
7. MACLEOD, J. M. H. *Recent Advances in Dermatology. Eczematoid Ringworm.*
8. *MILLER, H. C. *Rest-Cures in Theory and Practice.*
9. CURLE, D. *Observations on the Action of Iodine and Also On New Methods of Using It.*
10. HICKS, P. *A Common Cause of Cough.*
11. CLARKE, H. T. *A Case with Comments. Illustrating the Extreme Malignancy of Chrondo-Sarcoma.*
12. RYAN, C. *A Case with Comments. Sub-Tertian Malarial Fever Complicating Pregnancy.*
13. RUSSELL, W. B., AND WOOD, F. L. *A Case with Comments. A Case of Paratyphoid Infection.*

1. This paper on sleepiness is of interest from the literary as well as clinical point of view. The writer takes up the subject from all sides in a charming as well as instructive manner.

3. Jones considers epilepsy in a long article from the historical view point, and then takes up the varieties of epilepsy, the life of the epileptic, the aura, paroxysm and the pre- and post-paroxysmal stages. The article takes up briefly numerous points in regard to this disease and its relation to insanity.

6. Stephenson reports a series of interesting and instructive cases in which eye-strain simulated various forms of grave organic disease of the central nervous sytem.

8. Miller discusses various forms of rest cure- especially the Weir-Mitchell method and the disadvantages and limitations of these cures. He writes at length as to the futility of many such "cures," because of insufficient consideration to other factors, physical or mental, such as eye-strain, self-repression, etc. The aim of every rest-cure should be not only to put the patient on his feet again, but to teach him how to stay there; in these two things are essential—avoidance of routine and the most individual study of the cases. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1912.

1. *RITCHIE, W. T.. *Auricular Flutter.*
2. STRUTHERS, J. W. *Perforated Duodenal Ulcer.*
3. GUY, W., AND ROSS, J. S. *Nitrous Oxide and Oxygen as an Anesthetic for Dental and Surgical Purposes.*
4. MONCRIEFF, R. S. *Note on the Incorporation of Surgeons and Barbers.*
5. OLIVER, J. *Secretory Activity in the Mammary Glands Independently of Pregnancy.*

1. The term "flutter" applied to human auricles means a series of rhythmic co-ordinate contraction of the auricular muscles at a very rapid rate. In the first case described by the writer the rate was about 270-300 per minute in a case of heart block. In auricular fibrillation the beats are irregular thus differing from auricular flutter. He describes six cases in great detail with many tracings. Treatment is rest in bed with administration of digitalis or strophanthus preparations. The writer covers this complex subject in a thorough and careful manner.

[J. B. H.]

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

NOVEMBER, 1912. VOL. VI, No. 1.

1. LEWIS, P. *Sepsis and Spa Treatment.*
2. CANTLEY, E. *Tetanoid Spasms. Partial Aphasia.*
3. PARKINSON, J. P. *Congenital Syphilis; Hematuria.*
4. POYNTON, F. J. *Congenital Family Cholemia.*
5. BOX, C. R. *Excision of Spleen for Congenital Family Cholemia.*
6. HEATH, P. M. *Genu Valgum Due to Rarefaction and Deformity of the Shaft of the Femur.*
7. MILLER, R. *Cerebral Maldevelopment with Infantilism and Idiocy.*
8. FITZWILLIAMS, D. C. L. *Coxa Vara.*
9. KELLOCK, T. H. *Traumatic Pancreatic Cyst After Operation.*
10. STEPHENSON, S. *Ocular Torticollis.*
11. BANKART, A. S. B., AND DAWNAY, A. H. Y. *Torticollis of Ocular Origin.*
12. TURNER, P. *Lateral Sinus Thrombosis Followed by Thrombosis of the Facial Vein.*
13. WHIPHAM, T. R. *Anterior Poliomyelitis.*
14. MORISON, A. *Malformation of the Heart—Foramen Primum.*
15. CANTLEY, E. *Specimen of Tuberculous Right Kidney from a Child.*
16. WILLIAMS, E. C. *Notes on a Case of Precocious Development in a Boy, Aged Six Years.*
17. GOSSAGE, A. M. *Coarctation of the Aorta.*
18. DAVIES, H. M. *Arteriovenous Anastomosis for Gangrene Due to Syphilitic Endarteritis.*
19. GOW, A. E. *Unusual Rashes in Two Brothers.*
20. OSLER, W. *Circulatory Disturbance with Cervical Rib.*
21. WEBER, F. P. (*a*) *Giant Urticaria of Five Years' Duration.* (*b*) *Multiple Calcification in the Subcutaneous Tissue.*
22. SHAW, H. B., AND HOPKINS, P. *Double-jointedness, Dermatolysis, and Multiple Subcutaneous Tumors.*
23. MCGAVIN, L. H. *Report of Nine Surgical Cases.*
24. ROTH, P. B. *Traumatic Myositis Ossificans.*
25. BATTEN, F. E. *Case of Tremor.*
26. ADAMSON, H. G. *Subcutaneous "Sarcoid" Tuberculide of Darier and Roussy.*
27. DAVIS, H. *Paget's Disease and Inherited Alopecia.*
28. DORE, S. E. *Chancre of the Lower Lip.*
29. LITTLE, E. G. G. *Edema Neonatorum.*
30. *MCDONAGH, J. E. R. *The Life-cycle of the Organism of Syphilis.*
31. MACLEOD, J. M. H. *Multiple Lupus Vulgaris.*
32. SEQUERIA, J. H. (*a*) *Necrosis of the Terminal Phalanges.* (*b*) *Lichen Planus of the Palms.*
33. WALSH, D. *Relation of Heart Disease to Skin Lesions.*
34. *MORTON, R. *Arthritis*
35. *HAMER, W. H. *The Influence of Migration Upon the Phthisis Death-rate.*
36. BROADBENT, J. F. H. *Aneurysm of the Aorta.*
37. *TOOTH, H. H. *Growth and Survival Period of Intracranial Tumors.*
38. BRIGGS, H. (*a*) *Hydatid Mole.* (*b*) *Vaginal Adenomatous Polypus.*
39. MAXWELL, R. D. *Hematocolpos.*
40. *WILSON, T. *Gelatinous Glandular Cysts of the Ovary.*
41. PRIDEAUX, W. DE C. *An Improved Anesthetic Facepiece.*
42. WALLACE, J. S. *Food and the Teeth.*
43. NORTHCROFT, G. *A Misplaced Mandibular Promolar.*
44. READ, T. G. *Bread in Its Relation to Dental Caries.*
45. MCKENZIE. D. (*a*) *Lateral Sinus Thrombosis.* (*b*) *Epithelioma of the Meatus.*
46. MILLIGAN, W. (*a*) *Carcinoma of the External Ear.* (*b*) *Malignant Disease of the Middle Ear.*
47. MUECKE, F. F. *Bilateral Attic Disease.*
48. TOD, H. F. *Epithelioma of Auricle and External Auditory Canal.*
49. MILLIGAN, W. *Epidiascopic Demonstration of X-ray Negatives of Normal and Pathological Temporal Bones.*
50. LAKE, R. *Left Otorrhea and Right Temporal Sphenoidal Abscess.*
51. YEARSLEY, P. M. *A Simplified Apparatus for Inflating with Heated Air.*
52. PETERS, E. A. *Capillary Angioma of the Right Membrana Tympani.*
53. DAVIS, H. J. *A Horsebean Removed from the Middle Ear.*
54. MOLLISON, W. M. *Non-Infective Meningitis Five Months After Cerebral Abscess.*
55. *SHATTOCK, S. G. *The Microscopic Structure of Urate Calculi.*
56. *FARRANT, R. *Thyroid Action and Reaction.*
57. *WALTON, A. J. *Injury of the Semilunar Cartilages.*
58. *MARTIN, A. M. *Injuries to the Semilunar Cartilages.*
59. *DIXON, W. E. *The Selective Action of Drugs on Nerve-Endings.*

30. McDonagh reports an admirable study of the life-cycle of *spirocheta pallida*, illustrated by two excellent plates of microscopic figures in series.

34. Morton's presidential address on arthritis is illustrated by seven excellent x-rays.

35. Hamer, from an elaborate statistic study, illustrated by ten tabular diagrams, concludes that hereditary susceptibility is a more important factor in phthisis mortality than environment.

37. Tooth's observations, based on the reports of 500 cases, are illustrated by six tables and 33 photomicrographs. He writes with special reference to the pathology of the gliomata.

40. Wilson's article is illustrated by six case-reports and by eight excellent photomicrographs of pseudomyxoma of the peritoneum.

55. Shattock's article is illustrated by 13 microscopic sections showing the minute structure of urate calculi.

56. Farrant discusses the physiologoy of the thyroid gland with special reference to the formation of thyroid tumors. There are 30 excellent photomicrographic sections.

57 and 58. Walton presents a careful study of the mechanics of semilunar cartilage injuries, illustrated by several cases and by 20 outline figures. He believes hyperextension to be the primary factor in the production of these lesions. Martin reports his per-

sonal experience of 449 cases of operation for semilunar cartilage injuries.

59. Dixon presents a scholarly piece of pharmacologic research on the selective action of drugs on nerve-endings. There is appended an admirable bibliography of 91 titles on the subject. [R. M. G.]

REVUE DE MÉDICINE.

OCTOBER, 1912.

1. ROQUE, G., AND CORDIER, V. *The Tubercular Nature of Ascites in Cirrhosis, Particularly that of Laënnec.*
2. GOUGEROT, H. *The Classification of Acute Tuberculosis.*
3. LABBÉ, H., AND VITRY, G. *The Nitrogen Exchange in Phthisis.*
4. *CÉCILSAS, J. *Artificial Pleurisy. The Rational Treatment of Pulmonary Tuberculosis.*
5. OLIVER, J. *Secretory Activity in the Mammary Glands.*

4. Cécilsas believes that the beneficial results to pulmonary disease from artificial pleurisy are not due simply to a mechanical action, but rather to an inflammatory action arising from the presence of that foreign body. Weiss has shown that this may be done by the introduction into the lung of a flood of white cells and oxydase. The author goes even further and advocates the injection into the diseased portion of the lung itself some sterile irritant such as terpentine. This produces a local inflammation with the resulting reaction on the part of the tissues. He has attempted this radical step in the treatment of two cases of phthisis, presenting distinctly localized apical disease. The immediate results were somewhat alarming, but the subsequent course of the disease served to warrant the experiment. [L. H. S.]

NOVEMBER, 1912.

1. COUTEAUD, M. *Europe's Part in the Tuberculosis Epidemic in Polynesia.*
2. ROQUE, G., AND CORDIER, V. *The Tubercular Nature of the Ascites in Cirrhosis, Particularly that of Laënnec.*
3. *LEROUX, C., AND GRUNBERG, W. *The Offspring of 442 Tubercular Working Families.*

3. The authors, in a careful study, show the influence of heredity, direct and remote, upon the children of tubercular working parents. Such children, when they survive even to childhood, are shown to be more prone to the common diseases than are their more fortunate neighbors. Deformities and dystrophies are also more prevalent in this group. They suggest as a remedy an improvement of local and general hygienic condition in this class. [L. H. S.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

OCTOBER 23, 1912.

1. *REISS, E., AND JEHU, W. *Alimentary Galactosuria with Liver Disease.*
2. RONBITSCHEK, R. *Alimentary Galactosuria with Experimental Phosphorus Poisoning.*
3. *LANG, G. *Arterial Pressure in Asiatic Cholera and Its Changes Under the Influence of Large Salt Solution Infusions.*
4. HOHLWEG, H. *Disturbances in Hydrochloric Acid Secretion in the Stomach in Diseases and After Extirpation of the Gall Bladder.*
5. KLERCKER, K. O. *The Study of Pentosuria Based on Two Cases.*
6. WEBER, A. *Dicrotesia of the Pulse.*
7. ARNETH. *Relation of Eosinophilic Leucocytes to Croupous Inflammation of the Lung.*
8. CONZEN, F. *Tests for Renal Function.*
9. v. D. VELDEN, R. *Effect of Radium Emanations on the Blood.*

1. In an exhaustive study of certain types of liver disease these authors conclude in regard to alimentary galactosuria that in fever-free conditions it occurs most markedly in catarrhal jaundice. They have not been able as yet to study cases with severe parenchymatous degeneration such as phosphorus poisoning, yellow acute atrophy, etc. Moderate galactosuria occurs in most diseases of the liver but rather speaks against carcinoma, Cholelithiasis and passive congestion. Its presence usually excludes tumor disease of the liver. Normal tolerance towards galactosuria may occur in all liver conditions except catarrhal jaundice.

Accompanying this work is a report of a few experiments on dogs.

3. In the algid stage of Asiatic cholera in average cases the maximal blood-pressure falls but the minimal is apt to increase so that the average remains about the same. In the severest cases they both sink but the minimal less than the maximal. The cause of the fall in pressure is a diminution of the whole volume of blood through loss of water and contraction of the vessels. If after two liters of fluid are replaced the blood-pressure has returned to normal the balance of lost fluid is restored. If now more fluid is added the vessels become over distended and increase in heart action results. In the days following the algid stage an increase of blood-pressure occurs usually in other than the cholera typhoid type. In the cholera typhoid type the blood-pressure is usually increased. The blood-pressure is an indication, therefore, of the amount of salt solution infusion to use. The individual case varies, but from two to three liters are generally the limits. [C. F., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 49. DECEMBER 5, 1912.

1. SCHOTTLAENDER, J. *How Can the Early Operation of Cancer of the Womb be Furthered?*
2. IZAR, G. *Antigens for the Meiostagnim Reaction.*
3. STEIN, B. *The Treatment of Leukemia with Benzol.*
4. TSIMINAKIS, C. *Neuclein Acid Treatment of Progressive Paralysis.*
5. TEDESCO, F. *A Case of Healed Gunshot Wound of the Heart.*
6. ZUCKERKANDL, O. *Discussion on Wilms's Prostatectomy.*

ANNALES DE L'INSTITUT PASTEUR.

OCTOBER 25, 1912.

1. BORDET, J., AND DELANGE, L. *Coagulation of the Blood and Origin of Thrombine.*
2. BERTRAND, G. *Extraordinary Sensitiveness of Aspergillus Niger Towards Manganese.*
3. *MARCHOUX, E., AND LOVEL, F. *Leprosy in Rats; Its Etiology and Similarity to Human Leprosy.*
4. CESARI, E. *Studies Upon the Bacillus of Schmorl.*
5. ARMAND-DELILLE, S. F. *The Variations in Alexine after Anaphylactic Shock in Active and Passive Anaphylaxis.*

3. Following up their work reviewed in the preceding number these authors describe in this paper the peculiarities of the leprosy bacillus infection found in rats and its nature of transmission. The bacillus is destroyed only by fifteen minutes' exposure to 60°C. If the infection is more superficial it signifies that it entered by means of the skin. It follows along the lymphatics, and the point of inoculation does not always show the most severe infection. Transmission by the genital tract does not seem probable nor are insects carriers of the disease. The exfoliations from the skin probably play only a small rôle. The transmission seems to be by contact of in-

jured skin with infected skin. If a number of the bacteria are introduced into the digestive tract the disease appears in the lungs. The glands of the rats spontaneously inoculated are larger than those artificially inoculated. The glandular form is the one resulting from inoculation. To produce the musculocutaneous form impure products must be injected. [C. F., JR.]

IL POLICLINICO.

NOVEMBER, 1912.

MEDICAL SECTION.

1. GHILARDUCCI, F., AND MILANI, E. *Biologic and Therapeutic Action of the Fluorescent Substances Associated with the X-rays.*
2. MASSERINI, P. *Clinical and Radiological Diagnosis in a Case of Biloculate Stomach.*
3. *BILANCIONI, G. *The Graphic Study of Respiration in Stenosis of the Upper Air Passages.*

3. Bilancioni presents a report of an elaborate study with graphic records of the respiration, thoracic and abdominal, in cases of obstruction of the upper air passages. He finds that in adenoid vegetations the respiration undergoes considerable modification, consisting especially of extreme irregularity of rhythm with some diminution in frequency and variation in depth. In laryngeal stenosis from any cause the respiration is shallower than normal, and less frequent, but maintains its normal rhythm. After tracheotomy is observed the inverse of the physiological rhythm, with prolonged inspiration, also more frequent and less superficial breathing. [L. D. C.]

DECEMBER, 1912.

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts.* (*Continuation.*)
2. GAZZOTTI, G. *Experimental Contribution to the Study of Infibulation.* (*To be continued.*)
3. *BARNABO, V. *Resection of the Testicle.*
4. AGAZZI, B. *The Course and Results of Some Experimental Lesions of the Kidney.*

3. Barnabo' makes further report on his experimental researches on testicular resection on nine rabbits. [R. M. G.]

Miscellany.

RESIGNATION.

DR. FRANZ PFAFF has resigned as professor of pharmacology and therapeutics in the Harvard Medical School.

APPOINTMENT.

DR. CARL LUCAS ALSBERG, formerly instructor in biological chemistry at the Harvard Medical School, has been appointed chief of the bureau of chemistry of the United States Department of Agriculture.

NOTICE.

TWO-YEARS' INTERNESHIP—GOOD SAMARITAN HOSPITAL, GUANAJUATO, MEXICO.—This is a missionary hospital which was started by the Methodist Episcopal Church.

Guanajuato is a city of 60,000, located 160 miles northwest of Mexico City. It stands at an altitude of 6500 feet in a rich silver-mining region.

One year's report of the hospital staff shows 339 visits to homes; 4579 consultations, 24,523 treatments, 52 major and 279 minor surgical operations, medicines furnished 17,587 patients.

For this interneship a man is required who has had a thorough medical education and who is prepared to make his professional knowledge and skill directly subservient to the furtherance of the gospel.

Communications may be addressed to the director of the hospital, Dr. Levi B. Salmans, Good Samaritan Hospital, Guanajuato, Mexico.

RECENT DEATHS.

DR. CALEB DUDLEY BOYLSTON, who died on December 16 at the home of his daughter, Mrs. Abby Wood Smith, in New York, at the age of ninety-one years, had the double distinction of being among the last survivors of the men who crossed the plains in 1849 to California, after the discovery of gold there, and of having descended directly from the first native American physician. This was Thomas Boylston, Jr., the great grandfather of Mr. Boylston's great grandfather, who was born in Brookline in 1645 and was the son of the original Thomas Boylston, who came to this country from Staffordshire, England, in 1635. It was Dr. Thomas Boylston's son, the celebrated Dr. Zabdiel Boylston, who made the first attempts to inoculate against smallpox and who in 1721 inoculated his own six-year-old son.

DR. H. P. PORTER, a former United States army surgeon, who died on Dec. 23 at Butler, Mo., was born in Connecticut in 1839.

DR. PAUL OSCAR MEYER, of the Borough of Queens, New York City, died on Dec. 17, at the age of fifty-six years. He was a native of Germany, and was graduated from the University of Berlin in 1882.

BOOKS AND PAMPHLETS RECEIVED.

Motor Car Anatomy by Franklin Pierce.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 21, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,481	515	Pittsfield	10	2
Chicago	758	198	Waltham	13	2
Philadelphia	—	—	Brookline	8	—
St. Louis	—	—	Chicopee	6	2
Baltimore	—	—	Gloucester	11	—
Cleveland	—	—	Medford	8	2
Buffalo	—	—	North Adams	8	1
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	1	1
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	4	0
Boston	244	57	Westfield	6	1
Worcester	48	6	Peabody	—	—
Fall River	36	18	Melrose	5	—
Lowell	48	16	Woburn	3	2
Cambridge	27	9	Newburyport	4	2
New Bedford	27	3	Gardner	3	0
Lynn	19	4	Marlboro	—	—
Springfield	24	9	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	21	4	Adams	—	—
Holyoke	—	—	Framingham	—	—
Brockton	17	4	Weymouth	—	—
Malden	16	4	Watertown	1	1
Haverhill	12	—	Southbridge	2	1
Salem	17	3	Plymouth	—	—
Newton	9	—	Webster	3	2
Fitchburg	11	3	Methuen	—	—
Taunton	10	1	Wakefield	6	—
Everett	3	1	Arlington	—	—
Quincy	—	—	Greenfield	—	—
Chelsea	5	1	Winthrop	2	1

Original Articles.

REPORT OF 110 CASES OF RENAL AND URETERAL CALCULI AND OF TEN CASES SIMULATING THESE CONDITIONS, WITH COMMENTS.

BY F. S. WATSON, M.D., BOSTON.

THIS communication does not profess to present its subject in an exhaustive form but to give brief analyses of some of the more essential matters connected with it and such comments as the writer is led to make by his interest in certain features of the subjects.

Number of cases	120
Renal calculi	100
Ureteral calculi	10
Simulating renal calculi	10

CHEMICAL CHARACTER OF CALCULI.

	PER CENT.
Oxalates	34.0
Uric acid	24.0
Phosphatic	22.0
Mixed	16.0
Cystine	4.0

The chemical character of the calculi of this series does not differ essentially from that of two other series reported by Sir Henry Thompson and Mr. Morris in which, taken together, there were 191 cases in which the chemical composition of the calculi was as follows:

	PER CENT.
Oxalates	39.0
Uric acid	21.0
Mixed	17.0
Phosphatic	17.0
Cystine	2.0

Size of calculi.—There were four cases, two of bilateral calculous disease in which the calculi were of considerable size. The size of the two largest was 1¾ by 2 inches and of the other 1¾ by 2½ inches.

Calculi too large to pass through the ureter were	32
Calculi small enough to be passed spontaneously	66
Not recorded with respect to size	12
	110

Number of calculi present at one time in the kidney.—In 16 cases there was more than one calculus present in the kidney at the same time. The largest number was in one case in which there were six calculi in one kidney and ten in the other.

Recurrence of calculus after long intervals of freedom from the condition.—In six cases the patients discharged calculi after several years of apparent entire freedom from the malady and after having passed calculi before.

The longest interval in any of these cases was fifteen years between the first and the second attacks.

Relative frequency of bilateral calculus.—In 20.0% of the series calculi were formed in both kidneys. In 12.0% stones co-existed in both kidneys. Albarran and Legueu estimate the frequency of bilateral calculi as being 50.0% of all cases. Kummel puts the proportion at 28.0% and Kraft at 36.0%.

Symptoms.—Pain and tenderness on pressure over the kidney appeared in the writer's series as follows:

Pain was entirely absent in	12
Was in the form of typical renal colic	40
Frequently repeated dull pain in kidney	20
Vesical irritability	8
In sciatic region	3
In a limited area beneath last rib	2
Simulating pain of appendicitis	4
In heels (on three separate occasions)	1
Directly over site of calculus in ureter	4
	94
Not noted	16
	110

In five cases irritable bladder was the *only* symptom. In one pain in the heels was the *only* symptom. This pain came on from one to three days before the passage of large numbers of very small concretions of pure uric acid on three separate occasions and ceased entirely when the concretions had been passed. The patient had never had it on any other occasion.

Pain was associated with hematuria in all but twelve of the cases.

Errors in diagnosis.—In four of the cases the diagnosis had been made of appendicitis. In one instance it was believed to be a small deep-seated circumscribed consolidation in the lower part of one lung. In one case it was mistaken for gall-stones. In eleven cases the condition had been overlooked. Five of these were the cases in which irritable bladder was the only symptom.

Tenderness on pressure over the kidney in the space immediately below the last rib and just outside the outer border of the quadratus lumborum muscle or upon bimanual pressure over the kidney was absent in sixty per cent. of the writer's series of cases. When present it was most marked in the space in the back mentioned above. In two of the cases it was much more easily produced by pressure on the anterior wall of the abdomen over the kidney than elsewhere. In four it was situated directly over the appendix. In three of these four cases the calculus was impacted in the ureter, directly beneath the point of tenderness. In two more of the ten cases of ureteral calculi, the same thing was true with respect to tenderness being located directly over the point where the stones lay.

HEMATURIA.

As the only symptom	14
Visible to the naked eye	49
Microscopic blood	46
Large quantities of blood	5
Absent	10
Not noted in	5

The absence of hematuria is seen in this series to be very nearly as frequent as is the absence of pain. In constancy there is little difference between these two cardinal symptoms of calculus. It is to be noted that in the cases simulating calculus there were four in which hematuria was present in microscopic form, and in all of the cases of this sort, pain in form more or less characteristic of renal calculus occurred. In most of the cases pain and hemorrhage was increased by active bodily movement.

Enlargement of the kidney.—There was no palpable enlargement of the kidney in the large majority of the cases of this series. It is recorded as being present, in fact, in but 12 of them and in five of this number the kidney was the seat of either hydro- or pyonephrosis.

Spasm of the abdominal muscles of affected side.—This symptom was seen in a considerable number of the cases. It is noted as occurring in fifty-six. All of these patients were subjects of renal colic. In one of them there was a slight degree of muscular tension noticed for a good many days after the cessation of the attack of renal colic. This patient subsequently passed two more calculi. The spasm of the muscles was in all the patients limited to the side on which the calculus was located.

Great restlessness and often vomiting accompanied the renal colic in the cases in which it existed. Vomiting did not occur in any case in which the pain had other form than that of renal colic, but nausea was present at times in a few of the cases.

There was a rise of temperature in eight of the cases in which the kidney was extensively infected. In the rest of them it is not noted as having been present. A subnormal temperature is stated to have been present in five cases. The absence of an elevation of the temperature is one of the signs by which the condition may be distinguished from others with which it may sometimes be very readily confused. As a rule, also, even when there are severe attacks of renal colic there is not a corresponding degree of physical depression. The patient is often very white and looks faint, but almost never looks so seriously sick as does one with an acute intraabdominal inflammation such as appendicitis, for example.

Radiography.—In really expert hands radiography is a very certain diagnostic test of the presence or absence of renal or ureteral calculus, and should always be applied in any case in which the suspicion of renal calculus has arisen. In any but the hands of the best experts this test is unreliable.

The sources of error in radiography that were in its early days so frequently misleading, have been for the most part discovered and do not now confuse the diagnosis. It has become practically true that almost any calculus of any size and any chemical composition can be detected by radiography.

The chief sources of error in radiography are as follows: Phleboliths situated generally in the branches of the venous plexus that lies on the outer sides of the prostate and extends upward upon the neck of the bladder. Calcified glands in the neighborhood of the renal pelvis or ureter. Foreign bodies in the intestine and appendix. The latter are usually removed by thorough previous clearing out of the bowels. Calculi in the ureter are absolutely indistinguishable from phleboliths in many cases, and the ureteral catheter armed with a metal stylet serves to determine their true nature when it is used in connection with radiography by showing whether or not the shadows lie directly in the course of the ureter.

It is essential that the contents of the bowels shall be thoroughly evacuated before the radiograph is taken.

Other conditions which the ureteral catheter aids in distinguishing from renal calculus are displacements of the kidney, dilatations of the renal pelvis and malpositions of its outlet. These can usually be shown by injections of argyrol into the renal pelvis through a ureteral catheter before the radiograph is taken.

In the writer's series of patients there were forty which came to him for treatment before the x-ray was in use or before it could be relied upon for diagnostic purposes. In but two instances of the patients who have been submitted to this diagnostic test since the time of the greater perfection of radiography have there been calculi present which were not shown by the plates and in but one, so far as can be determined, was a calculus apparently shown by the plate when none was present. Three mistakes in 60 cases.

Cases simulating renal calculus.—In the series presented in this communication there were ten in which there were symptoms closely simulating renal calculus, but which were due to other conditions. These conditions were as follows:

Displaced kidney constricted by bands of adhesions in	2
Pressure of adhesions in a kidney not displaced in	1
Movable kidney not detected prior to operation	1
Moderate distension of renal pelvis and calcyces due to misplaced ureteral outlet from pelvis	1
Enlargement of kidney due to acute congestion	2
Constriction of ureter due to adhesions	2
No detectable cause in kidney for symptoms in	1
	10

In the larger number of cases of this sort there is some definite renal or ureteral condition to account for the production of the symptoms. Now and then no such condition is to be found and we are forced to fall back upon the rather weak diagnosis of nephralgia as an explanation of them.

In the small number of conditions noted in the ten cases of this class in the series, there is a noticeably large proportion in which the condition producing the symptoms was adhesions pressing on the kidney or the ureter.

Dangers of leaving calculus in the kidney.—It is true that in a certain proportion of cases the patients do not suffer any serious bodily harm because of calculus; some of them do not even have attacks of pain or sufficient hematuria to attract their attention and may go on for years or even all their lives without detriment to health or lessening of bodily activity. It is largely due to this fact that so many medical practitioners, especially in the past, have allowed their patients with this malady to live unrelieved of their calculi by surgical intervention and have still further permitted them to encounter the very grave dangers and even death because of the delay in resorting to surgical intervention until the kidneys have been infected and gravely compromised in their functional capability.

There is some excuse for this, of course, in the cases which are called latent calculus, that is to say those in which there are few or no symptoms or in which the patient may have had one or two attacks of renal colic long since or of hematuria and not have shown any sign of renal or ureteral calculus since that time, but the statement made many years ago by Mr. Morris, the English surgeon, cannot be too strongly endorsed or too strongly emphasized. It is this: "Renal calculus and still more ureteral calculus is always a menace to life."

That it does not always result in death or serious disability does not excuse too long delay in applying surgical treatment which is now, even in serious calculus conditions, attended by so large a measure of success and which in the cases of kidneys not yet infected is almost without operative mortality.

A striking example of the destruction to the kidney that may be worked by a renal calculus without giving any sign of its presence is that reported by Mr. Shields. In this case the patient had had but one or two attacks of moderate hematuria and slight renal pain fourteen years until one week before he came to the hospital, when he had marked hematuria and severe pain in one kidney. Radiography showed the presence of a very large stone in one of the kidneys.

When it was removed by operation soon afterward it measured 10½ inches in circumference and five inches in its long axis. It had wholly destroyed all secreting substance of the kidney which was represented merely by a pyogenic membrane in which the stone lay. The opposite kidney in this instance happened, fortunately, to be normal and to have consequently been amply able to carry on the function of urinary secretion without detriment to the patient's health, which had not suffered in any respect from the presence of the calculus in the opposite kidney. He had been a laboring man and hard at work all the while in the fourteen years since the first evidence of calculus had appeared and had been entirely free from all signs of such trouble in the interval.

Another danger of leaving a calculus in the kidney is the invitation to infection that it always extends and that often takes place in consequence. This infection varies in degree from a mild pyelitis to extreme degrees of pyonephrosis and again to the formation of perinephritic abscess from inflammation of the perinephritic tissue and its infection or from perforation of the kidney or its pelvis. Again as the result of long standing irritation of the perinephritic tissue, even in the cases in which suppuration does not occur, there result greater or less dense masses of connective tissue which render far more difficult any operative procedure that may become necessary at some time during the course of the malady. Finally there is the very grave danger, especially in cases of bilateral calculus, of the occurrence of obstructive anuria due to the blocking of the ureteral canal of one side when the opposite kidney is functionally incapable or when the opposite kidney is absent, or from the simultaneous blocking of the ureters of both sides in the bilateral cases.

Calculus anuria.—One of the grave dangers attending renal calculus is that of having obstructive anuria occur through the calculus being passed into and becoming impacted in the ureter or ureters.

In the unilateral cases anuria is in the great majority of cases produced by the prevention of the urine from making its exit from the kidney, the second kidney being either absent or so seriously damaged that it cannot supply sufficient secretion to be of value in maintaining the life of the individual. In a small minority of the cases which will be referred to again later when speaking of the surgical treatment of these cases, this is not the case and there is a kidney on the opposite or unobstructed side which has a useful degree of functional capability if it can be restored to its previous activity. Whenever this is the case the suspension of that second kidney's function is due to reflex inhibition arising from the blocking of the ureter of its fellow organ.

In bilateral cases there is always in addition the chance that both ureters may become blocked at the same time.

MEDICAL TREATMENT.

Treatment of renal colic.—The treatment of renal colic consists chiefly in administering enough of an anodyne or anesthetic to lessen the pain so that it can be borne by the patient. It is, in the writer's experience, much better to do this by the combined use of ether and morphia than by the employment of morphia alone. The doses of morphia which are enough to control the pain of a severe attack of renal colic are likely to prove poisonous if the pain—as it so often does—suddenly ceases, whereas if ether is given to the point of securing primary anesthesia and at the height of the spasms of pain only, the dosage of morphia may be much reduced and neither the drug nor the anesthetic are harmful or dangerous.

Thus, one-sixth grain of morphia subcutaneously administered is usually sufficient when primary anesthesia is given in the worst times of pain of the crises of the attack, to make the latter tolerable. The writer has carried a patient through seventy-two hours of repeated renal colics, attending the passage of four calculi, with a sixth of a grain of morphia every ten or twelve hours and primary anesthesia with ether whenever it was required, and the patient suffered but very little pain during the entire time.

In addition to these measures, heat applied to the affected side is more or less beneficial as an aid to still the pain, and the patient should drink freely of water.

Treatment given to cause the expulsion of the stone.—There is but one medicine which the writer has found to be valuable in aiding the passage of renal calculus and it has proved of great benefit in too many of his cases to allow him to doubt its efficacy for this purpose. The drug referred to is *spirits of turpentine*, given in 10-minim doses, in gelatine capsules, thrice daily. In conjunction with this remedy the patient is put upon milk diet to which may be added once daily some fish and dry toast.

Each tumbler of milk should be diluted one-quarter part with Vals water, the milk should be swallowed slowly and should be slightly warmed. Under this regimen the following results were obtained in cases in which the calculi were small enough to pass through the ureter.

Cases in which turpentine was given	66
Calculus expelled in	51
Failures	7
Lost sight of, did not complete treatment	8
Percentage of success, about 87.0	66

In the seven cases in which the treatment failed to bring away the calculus the patients were subsequently operated upon. Turpentine should be given for six days, then omitted for two days and resumed for six days more, if required.

The theory with regard to the beneficial influence of turpentine in causing the expulsion of the calculus is that it dissolves the adhesive substance by which the calculus is often attached to some part of the interior of the kidney or its pelvis, and the stone being thus made free presently enters the ureteral orifice and when small enough to do so passes to the bladder. This was accomplished with far less pain as a rule than the patients felt who did not have turpentine under the same conditions.

Turpentine thus administered is, as was said, far more efficacious than any other internal remedy that the writer has hitherto tried or seen tried by others. The patient is directed to drink a large quantity of water during the treatment and is kept entirely quiet during each course of six days. The average length of time before the calculus passed in the successful cases was eleven days.

Surgical treatment.—When it is shown by radiography that a calculus is too large to pass through the ureter, it is a waste of time and sometimes a dangerous waste of it to delay the prompt performance of nephro- or ureterolithotomy. In less degree this is also true of cases in which the calculus is small enough to pass through the canal of the ureter. In the latter class of cases a reasonably long time should always be devoted to endeavoring to cause the spontaneous expulsion of the calculus by medical and palliative treatment. When, after treatment of that sort has been repeated several times, lasting perhaps from one to two months, with proper intervals between the courses of turpentine, rest, and the diet described, the patient should be advised to have the calculus removed. In cases of calculous anuria delay in performing the operations should not exceed twenty-four, or at most, thirty-six hours. This gives plenty of time to apply all palliative remedies that are likely to be of value and further delay always adds to the patient's danger.

SURGICAL OPERATIONS EMPLOYED.

Renal calculi. Nephrolithotomy in	36	Deaths 2
Ureteral calculi. Ureterolithotomy in	8.	Deaths 0
Secondary nephrectomy	2.	Deaths 0
In cases simulating renal calculus		
Various operations	10.	Deaths 1
	56	3
Nephrolithotomy in cases with infected kidneys	20.	Deaths 2
Nephrolithotomy in cases with non-infected kidneys	16.	Deaths 0
Ureterolithotomy with infected kidneys	2.	Deaths 0
Ureterolithotomy with non-infected kidneys	6.	Deaths 0

In the two fatal cases the patients had bilateral calculus. One of them had had anuria for three days and uremic symptoms for twenty-four hours. She also had perinephritic abscess of both sides. Simultaneously performed bilateral nephrolithotomy was done. The patient survived and the urinary secretion was resumed, but she succumbed, owing partly to uremia and partly to systemic sepsis.

In the second case the calculus was removed from one kidney only. Another calculus was in the opposite kidney. It had perforated the renal pelvis and the wall of the ascending colon and had created a large abscess in so doing. The patient's condition, when operated, was most critical. She died of shock at the end of twelve hours.

Two of the patients had fistula following nephrolithotomy and the kidney was in both cases extensively infected and pyonephrotic. Nephrectomy would have been done primarily in each of these cases, had the patients' condition not been so critical. It was done subsequently and both patients made good recoveries.

Operative methods employed.—In four cases the so-called paraperitoneal exposure of the kidney was made; in the remainder of the thirty-six nephrolithotomies the ordinary oblique lumbar

incision was used. In two of the ureterolithotomies the paraperitoneal exposure was used; in the other six the usual oblique lumbar incision was extended downward in front of the anterior superior spine of the ilium to a greater or less extent as was required to reach and extract the stone.

In all the ureterolithotomies the ureteral incision was closed and in all but two of them the outer wound was closed without drainage. In two drainage was employed and a temporary and short-lived leakage of urine took place in both, but the wounds soon healed.

Two only of the calculi were situated low down in the ureter. In both of these cases the paraperitoneal incision was used.

Cases of bilateral calculus.—There were six cases of bilateral calculus disease in the 36 in which nephrolithotomy was done. In three of these bilateral cases, simultaneously performed, bilateral nephrolithotomy was done. In the other three the calculus was removed from one kidney first, and in two the second one was taken from the kidney of the opposite side after an interval. The third patient died before the second operation could be done.

The surgical treatment of calculous anuria.—It has usually been stated that in cases of unilateral calculous anuria the nonobstructed kidney was either absent, or so far damaged by injury or disease as to be functionally useless. At the Congress of the International Association of Urology in Paris, in 1908, the writer demonstrated that this was not always the fact and cited 17 cases of *unilateral calculous anuria* in which the unobstructed kidney was found to be functionally capable in a useful or essential degree, and 13 cases of bilateral disease in which the ureters of both kidneys were obstructed by calculi at the same time and in which both kidneys contained a useful amount of secreting renal substance.

In at least thirty cases, therefore, both kidneys have been shown to possess useful or essentially-important-to-life secreting substance.

This demonstration, though it applies to but a small number of cases of calculous anuria, has an important bearing upon the question of surgical treatment.

The object of the latter should be to restore to the patient, with this condition, every bit of the capable renal function that he possesses, for he needs every bit of it if he is to be given the best chance of living.

The question arises: In what way can the surgeon best give him this chance? It is well established that in cases of calculous anuria the quickest and surest way of restoring the suspended urinary secretion is by laying open the obstructed kidney and, if the patient's condition permits, taking the calculus from the kidney or the ureter, as the case may be, but at any rate to incise the kidney.

Simultaneously-performed bilateral nephrolithotomy and unilateral nephrolithotomy in the treatment of renal calculus with anuria.—It has happened in a few cases that the surgeon has, in a case of unilateral obstruction, cut down by mistake upon the kidney that was not the seat of the calculus and that was not the obstructed organ and has found an absolutely useless kidney or that it was absent, which is, practically speaking, the same thing. What has he accomplished? Obviously nothing of benefit for the patient. He has merely added whatever the shock of the operation may be to the already dangerous condition of the sick man. Now let it be supposed that instead of a useless kidney he has found one that is more or less diseased but still capable of performing some degree—very likely a useful degree—of functional work, still, but in all probability not enough to support life by its own unaided efforts. What has he accomplished if he stops there in such a case? He has freed that organ of its suppressed function and given the chance for the resumption of its part of the total functional work of the two kidneys, but in all probability not enough of it to maintain life by itself. What can he do further? There is but one thing that can be done, which is to at once expose the opposite kidney, lay it open and remove the obstructing calculus from it. He may find that the second kidney is capable of carrying out efficiently the whole amount of the work of urinary secretion but in a certain proportion of the cases he would find that the second kidney operated upon would not have enough sound renal substance to do this by its work alone. But that there was a good prospect that the work of the still capable renal substance in *both kidneys* combined would be capable of maintaining the life of the individual. That this condition, just described, will not occur very often is undoubtedly true. That it will happen in some few cases, is seemingly also true, and all that the writer wishes to point out is that it will especially be likely to happen in those cases in which the first kidney exposed is found to have some, but not enough sound renal tissue to support life by its functional work alone and that when this is the fact the surgeon should at once cut down and remove the stone from the second kidney. In this way only can he set free or give every chance to have set free the total functional capacity of all the functionally capable renal substance possessed by the individual, whereas, if he limits his intervention to one kidney alone, he will not have done this. What has just been said applies to a small number of cases of unilateral calculus that have occurred and to such as will be found to be like them in the future.

What has just been described will be more often found true of the cases in which the disease exists on both sides. In the communication made to the International Urological Association, that has been referred to, the writer reported 12 cases of bilateral calculus in which both ureters were simultaneously blocked by calculi and in which both kidneys contained

secreting substance that was functionally capable in a useful degree. In three of these cases no operation was performed and all three patients died. In seven cases a unilateral operation was done and all the patients died. In two cases a simultaneous operation was done upon both kidneys and both patients recovered.

Two cases, one of which was included in the report referred to but which the writer has since published, seem to him of special interest in this connection. The surgeons in whose care these patients were, were Albarran and Hugh Cabot. The course of events was practically the same in both and was as follows: In Albarran's case, he performed nephrolithotomy on one side upon a patient who did not have anuria. Twenty-four days later, all having gone well in the interval, the ureter of the second kidney became obstructed by calculus and total anuria occurred. No operation was done upon this kidney and the patient died. In Cabot's, the same phenomena were seen except that the anuria occurred on the eighteenth day and that Cabot at once operated upon the second kidney, removed the calculus and his patient lived.

These two cases speak strongly for the occurrence of reflex anuria and emphasize also the importance of the value that simultaneous bilateral nephrolithotomy may have in certain cases of calculous disease affecting the two kidneys. They also show clearly the danger of leaving a calculus in one kidney when removing one from its fellow organ of the opposite side.

The writer urged at the meeting of the International Association in 1908, the view that there was no reason for leaving a calculus in one kidney when taking one from the organ of the opposite side, in any case of bilateral calculus whether the patient has anuria or not. He can see no danger in removing the stones at the same time from both kidneys and can, on the contrary, as he has just pointed out, see wherein there may be very serious danger in leaving a stone in the other kidney to be removed, at a subsequent operation. It has been objected to this view that there is the danger of greater shock attending the simultaneous performance of the two operations, and the further danger of producing anuria when it is not already present because of the operative injury done to the two kidneys at the same time. He is not unaware of the fact that a temporary suspension of the urinary secretion may follow extensive operative interference with one or both kidneys, but this may also occur in operations entirely unconnected with the kidneys and in a few instances when they are not done upon any part of the urinary tract. Furthermore, there is but a very small number of cases in which fatal anuria has followed operation upon either one or both kidneys as the result of the operative injury done to the organ, and still fewer—for but relatively few of them have been done on both kidneys at the same time—in which the simultaneously-performed bilateral operation has resulted in threatening or fatal anuria from the same cause.

Cases simulating renal calculus.—The conditions found by exploratory operations in these cases were as follows:

CASES.	NO.	DEATHS.
Movable kidney	1	0
Adhesions compressing some part of the kidney	3	1
Adhesions compressing the ureter	2	0
Acute congestion	2	0
Nothing found to explain symptoms	2	0
	10	1

Movable kidney not detectable before operation was found in one case and the patient was cured by nephopexy. Cases in which adhesions constricting some part of the kidney existed—once when the kidney was in its normal position and twice when it was fixed in an abnormal position—were treated by nephrectomy. Two patients recovered and were cured, the third one died of pneumonia on the thirteenth day after having done perfectly well up to the ninth day. In all the other cases the patients recovered and were cured.

No cause for the acute congestion was found in the two cases in which it occurred; both patients were relieved of symptoms.

The presence of adhesions constricting the ureter, and resulting in a dilatation above the point of narrowing as well as a decided deviation in the course of the canal, offered an explanation of the symptoms in two cases. The etiological factor which had given rise to the adhesions was not evident and could only be conjectured. In both of these cases there was some difficulty in freeing the ureter from the connective tissue which composed the adhesions, but in both it was accomplished completely and the patients were cured. One of them reported one year after the operation was done and had been perfectly well in the interval.

SUMMARY OF MEDICAL TREATMENT.

Manner of treatment.—For renal colic the combined use of ether inhalations and moderate doses of morphia. Heat to the affected side. An abundant supply of water to be drunk. Liquid or milk diet.

To aid in expulsion of calculus from the kidney the treatment far the most successful in the writer's experience is: Spts. turpentine in 10 minim doses in gelatine capsule t. i. d. Diet of milk, each tumbler diluted one-quarter part with Vals' water, milk to be slightly warmed and drunk slowly. Fish and dry toast may be taken once daily. Patient is to rest recumbent during the regimen and to take occasional hot sitz baths. Treatment to last six days consecutively, then after a two-days' interval it is repeated once or twice, if necessary. After one month or six weeks of this treatment at most, if the stone has not passed, it should be removed by surgical operation.

In every case in which the patients were freed from their calculi by medical treatment, cure was absolute and in twenty of them the patient's subsequent history was followed from three to twenty years subsequently. In but a very small number of these—six—was there any recurrence of the trouble. These patients got rid of their recurring-calculi under the same treatment as was employed in the first instance.

In seven of the cases treated medically there was failure to cause the calculus to pass. These patients were operated upon successfully later.

In 87% of the writer's cases thus treated, in which the calculus was small enough to pass through the ureter, it was spontaneously expelled, while the patients were under medical treatment.

SUMMARY OF SURGICAL TREATMENT.		DEATHS.	CURES.
Number of patients operated upon	56		
Nephrolithotomies	36	2	34
Subsequent nephrectomies	2	0	2
Ureterolithotomies	8	0	8
Nephrectomies in cases simulating renal calculus	3	1	1
Nephropexy in same class of case	1	0	1
Freeing ureter of adhesions	2	0	2
Splitting capsule—nephralgia	2	0	2
The same for acute congestion	2	0	2
	56	3	53

Operative mortality for total number is 5.3%

SOME RESULTS OF DISPENSARY WORK IN THE CONTROL OF TUBERCULOSIS.

BY CLEAVELAND FLOYD, M.D., BOSTON,
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CLINICAL effort, which often goes by the name of "dispensary work" is rarely called upon to direct its attention to the control of any disease. Its work generally deals with a collection of individuals with many types of illness and requiring as many different methods to obtain relief. In taking a part in controlling tuberculosis, the dispensary may unify its efforts in combating one disease on well drawn lines.

The fact that the sanatorium has been in existence for years has firmly established it in its preëminent role in the treatment of incipient cases. The hospital for the isolation and care of those advanced in the disease, while of more recent growth, is now fully recognized as an essential factor in its suppression.

But with all sanatoria and hospitals, the problem is an individual one, and the underlying causes of the disease can receive but limited attention. The field of the dispensary lies largely between those efforts directed towards the cause of tuberculosis on the one hand, and its isolation on the other, and yet, among all agencies working toward the limitation of this disease, it has perhaps the least fixed position. Tuberculosis must largely, because of its existence in the home, be checked there in its course; the disease while still obscure must be detected, the services of the sanatorium or hospital obtained, where they are necessary and their work made productive of the greatest amount of good by means of prolonged supervision. If this is conceded to be the part that the dispensary is called upon to fulfill, a test of its efficiency may be obtained by the results that appear in the following direction:—

First, How many cases of tuberculosis have developed among those under clinical supervision during an observation period of several years?

Second, How many cases regarded primarily as negative have, in a period of months, been proven to be positively tuberculous?

Third, How many cases regarded as tuberculous have been followed through the course of the disease until an arrest has been well established or hospital care provided for them until death?

The thoroughness of the work of prevention, the accuracy of diagnosis and provision for those suffering with tuberculosis will thus be clearly shown. How far the dispensary has met these demands has never been fully studied, as far as I am aware.

Any clinic for tuberculosis should periodically put itself through such a test of efficiency in order that its routine may not become worn out and the individual case become lost sight of in the aggregate.

The work of the clinic of the Boston Consumptives' Hospital, which has now been carried on for about five years, has offered an opportunity to gather facts along these lines in Boston and I have made a statistical study of what has been accomplished among such patients as have presented themselves for treatment.

In this as in other clinics for tuberculosis all classes of patients complaining of pulmonary symptoms are received for treatment. Of necessity, therefore, in many instances, must cases of non-pulmonary disease be considered and examined into. There are also many instances of patients who have been exposed to tuberculosis who come for examination. The clinical material consequently at our disposal has consisted largely of three groups of cases:—

(*a*) Negative cases.
(*b*) Cases of non-pulmonary disease.
(*c*) Cases of pulmonary tuberculosis.

The duty of the clinic towards the well or negative case consists first of all of being sure that there is no question of health, and second, that the symptoms of the patient, or the surroundings that have given rise to suspicion, are improved. Too little thought is given to the healthy as they pass through the routine of examination, for it is just as important that they remain well as that others that are sick should be provided for. Often on account of conditions that threaten health a negative case will have to be continued under observation for a considerable period of time and this may run into years before all that should be done is accom-

plished. No tuberculosis dispensary is well balanced in the scope of its work unless at least one-third of the patients it reaches out for are proven to be negative cases.

The cases of non-pulmonary disease require little more than to be referred to a general medical clinic. In regard to the cases of pulmonary tuberculosis the dispensary has as its duty to make an accurate diagnosis, settle upon a suitable disposition in every case and provide supervision in every instance as long as it is required.

All the efforts of a clinic, no matter whether its work is general or specialized are to some degree negatived through the mass of clinical material that presents itself and the failure of the individual patient to sufficiently co-operate. It is not uncommon for a patient coming in for examination to give a fictitious name and address, in order that he may never be traced. Frequently a patient will change his address as often as once a month, or even a week, and in spite of all efforts he is soon lost track of. Many patients who have once reported for examination on account of pulmonary symptoms, and have been somewhat relieved by treatment will resent all later attempts at further inquiry into the state of their health.

The lack of exactness in the diagnosis of diseases of the chest, giving rise as it does to a confusion of opinion among physicians too frequently offers a loophole of escape to the patient from his worst fears, and often the truth as to his condition is never brought home to him and the value of the clinic in the case comes to an abrupt end.

The ready assurance which the arrested case of tuberculosis has in himself, feeling as he does that further trouble after leaving a sanatorium is impossible for him, is the cause of many relapses and the disappearance of many patients from the roll of the clinic.

The constant movement of patients to the surrounding towns and cities of Boston, especially our foreign born people who do not take kindly to institutional treatment, adds to the ineffectiveness of this type of work.

In any estimate of the results accomplished through a dispensary these difficulties must be considered. They will vary much in the extent to which they are an embarrassment in different sections of the country, and will depend to a considerable degree upon the support accorded by allied hospital and health departments. But even when co-operation has reached a high grade they will still be present.

Statistics to be of value must be based upon sufficiently large numbers to give a fair average and to afford anything like accurate conclusions. For this reason the results obtained in the first five thousand patients examined at our clinic beginning September, 1907, and continuing into the middle of the year 1909 have been made available. Since this latter date three years of observation and disposal of the patients have elapsed. While I fully realize that in some instances where the statement of the patient has had to be taken as to his condition, inaccuracies will creep in, nevertheless, I believe the figures obtained are sufficiently reliable to be of value.

Among some five thousand patients there were found to be as the result of their first examination, 2121 positive cases of pthisis, 1130 who were suspected of having the disease, and 1707 who were negative. Of the remaining 42 we have insufficient data. Of this total number 1315 were lost to the clinic through their giving an incorrect address, or through their moving away. They were divided as follows: 575 were considered negative when lost to the clinic, 382 were suspected cases and 358 had definite pulmonary tuberculosis.

In other words, about one-sixth of the positive cases were lost sight of during a period of observation varying according to the individual case from two to four years. It is only natural to expect that the group of negative cases lost should be by far the largest one, as in almost any clinic it is the custom to give less attention to this group than to those demanding active supervision. The group of suspected cases, as a result of continued study, gradually separates itself into positive and negative; generally the larger proportion being grouped with the latter. The apparent good health enjoyed by most of this class makes for little interest in a tuberculosis clinic, and once through the routine they frequently disappear or cannot be driven to return for further examination. Among 358 cases of phthisis who were lost from observation, 247 cases were never found upon home visitation and never subsequently reported at the clinic after the first clinical examination. In other words, these are the tuberculosis "carriers"; the indiscriminate spreaders of the disease. The man who suspects that he has phthisis and yet desires to hide it at the expense of the public will in all probability be increasingly in evidence as the supervision of cases through the local Board of Health becomes more efficient.

Whether the time will ever come when it will be necessary to establish observation wards in connection with our institutions for tuberculosis in order to detain such patients as seem likely to drift into this class will remain for the present an unsettled question.

That large group of cases which are constantly moving from place to place and thereby spreading infection with them, can be greatly decreased by immediate and close observation in their homes in order that their future movements may be determined, or by an ordinance preventing their removal till approved by the Board of Health. For those patients who move without the city limits and consequently escape the jurisdiction of the Health Board, either State supervision or a metropolitan plan of co-operation among tuberculosis clinics will in either case meet this need.

By these measures the floater and drifter having active tuberculosis in the community can be much more readily controlled and the work of the dispensary made productive of greater usefulness at one of its weakest points. There is a definite class of people seeking treatment in a dispensary that demand prompt measures if the end we seek for them is to be accomplished. Delay in giving relief or in providing hospital treatment quickly ends the usefulness of the clinic through dissatisfaction over what they think should be accomplished for them. Until this is more fully appreciated by those in charge of institutions caring for the consumptive a fairly large percentage of positive cases will continue to be placed among those lost sight of.

While the total number of cases who have been lost to the clinic appears large, making as it does about one-fifth of the number investigated, we must not forget that in any large city, with a rapidly shifting population, this will occur, and it is much more in evidence in larger cities like New York and Chicago than it is in Boston. With the firm establishment of a dispensary in any community through its securing a hold upon its patients there must in time be a marked reduction in the number of its cases who drop out of sight.

It occasionally happens that patients who have been found free from pulmonary disease on their first examination and of whom we have had no knowledge for some years, drift back to the clinic showing active tuberculosis. Responsibility for this condition most frequently lies with the individual. Nevertheless, if each person going through the routine of the clinic has the dangers of tuberculosis sufficiently impressed upon him, as well as the importance of proper living, this will rarely occur.

In nearly every instance where one of our patients has reported for examination there have been symptoms that gave concern as to the condition of the lungs or exposure to tuberculosis has taken place. On account of these facts, therefore, the aftermath of our negative cases is of some importance; 1707 such are included in our first five thousand. Of these, 604 have recently been examined and found well; 520 have reported themselves to be well or suffering from complaints other than tuberculosis. Of the remaining 635, 575 are included in the group of lost cases, and only 24 have developed pulmonary tuberculosis, or less than one per cent.

Fully two-thirds of these cases have been exposed to phthisis and these figures speak for the power of isolation and observation in checking this disease.

But the tests of how efficient a tuberculosis clinic and its work in the home may be, is also strikingly shown by the demonstration of how many cases which have been suspected of having the disease have subsequently developed it while under observation for a period of years. The large number of patients suffering from over work, anemia, debility and bronchitis are always open to the possibility of having tuberculosis. Furthermore, slight chest deformities and poor lung expansion frequently give rise to just enough signs to demand constant observation; 1130 patients presenting just such questionable evidence of phthisis were among our first five thousand cases. Of these 382 have disappeared and all trace of them has been lost, 748 have been successfully followed and 62 cases have developed phthisis. This number also includes those whose condition rapidly changed after their first examination and who were in a short time proven tuberculous.

One of the chief difficulties in any large clinic for tuberculosis is the trouble which arises in surely making the diagnosis of incipient phthisis from slight signs. This most frequently occurs in children, and unless every means of diagnosis is at hand many cases drift away, to the dissatisfaction of physicians and patient. To distinguish between physiological differences at the right apex and early tuberculosis is no easy matter. I have been much interested in following these cases of questionable right apical signs, who are often classed as questionable cases to see if in a relatively short space of time tuberculosis developed. Among a total of 1130 cases suspected of pulmonary tuberculosis, 624, or a little more than 50%, gave signs at the apex of the right lung. The others are almost equally divided between having questionable signs at the left apex and base. Almost without exception, in these cases there has been a disappearance of these signs, or where they have persisted, active tuberculosis has failed to develop. Where the right apex has shown questionable involvement, 62 of the number of cases that we have been able to trace have developed phthisis. It would seem from our observations in this series of patients that the lack of pulmonary lung expansion and chest development, together with the not infrequent condition of an old inactive apical process most commonly give rise to these signs.

In our work as carried on in the various districts of Boston, it has been our policy to examine families as complete units where tuberculosis had gained a foothold. The result of this effort has fully justified itself. Included in this series of cases there was a total of 1563 children. Of these 302 were found to have pulmonary tuberculosis, or about 20% of the total number, 386 were suspected of having the disease and 875 were negative cases. A history of exposure was obtained in 684 instances, the father being the focus of contagion in 464 cases and the mother in 278 cases. Only a very few cases occurred where both parents were found to be suffering with the disease.

In a study made some time previously in regard to the morbidity of tuberculosis in children as the result of family infection pulmonary signs were found in between thirty and forty

per cent. of the cases. In the present work, while only two-fifths of the total number of children came in close contact with the disease in the home yet twenty per cent. showed signs of phthisis.

About 1000 of these children came from families in which there were more than four children. This alone gives an idea of the opportunity for the propagation of the disease from direct contact.

As regards the outcome of these cases after a period of observation of sufficient length of time to be of some value in the determination of the immediate prognosis, only 40 cases of phthisis have developed where it was not detected on the first examination. These are included in the foregoing number of developed cases. The great majority of positive cases have been completely arrested and these children are for the most part attending school. It is evident, I think, that the work of prevention among children is one of great promise. The Preventorium has a large place in every community. The need in Boston is pressing if we are to obtain control of tuberculosis in the near future.

In order that the increasing good which is manifested by the isolation of cases suffering with phthsis may be realized to its fullest extent it is the ideal of every institution for tuberculosis to provide such isolation for every case within its wards as long as they are a danger to the community. As yet this is far from possible, both on account of the still inadequate number of beds, and also because of the refusal of many patients of the opportunity for hospital treatment when it is presented. It is important, however, to know as far as possible whether in the instances where death has occurred it was in an institution or not. My statistics show that among 600 cases a little less than 50% died in a hospital; the remainder were cared for by nurses in the homes of the patients. In almost this entire group, however, hospital treatment for varying periods of time during the illness occurred. Local sentiment and local conditions, depending largely upon the proximity of the hospital and its reputation among the sick will naturally make this state of affairs a variable one.

The more closely the hospital organization is in touch with its patients, socially as well as medically, the easier the solution of this difficulty will be. Where it is the policy, as in Boston, to utilize to the fullest possible extent existing sanatoria and hospitals in caring for patients and not to encourage treatment at home, the value of institutional care cannot but be realized in the community and the opportunities thus offered more completely utilized.

If the statistics here given demonstrated anything they would seem to show that a dispensary has a well defined and valuable place in the control of pulmonary tuberculosis. Its work cannot be measured in the terms of "cases cured" as can that of the sanatorium, but its usefulness will be almost entirely along the lines of diagnosis, isolation and prevention. The conclusion would seem justified, that in the absence of any specific remedy for pulmonary tuberculosis, its suppresion will be brought about by multiplication of those agencies at present working against it. Neither the sanatorium, the hospital, or the dispensary alone can make much headway, but working together as one unit they must in time fully justify their existence.

THE SACRIFICE TO ASKLEPIOS: A MIME OF HERONDAS.

BY ROBERT M. GREEN, A.B., M.D.

UPWARDS of some twenty years ago there was discovered at the British Museum, among a collection brought from the catacombs of Fayoum, beyond the pyramids, a mutilated Greek papyrus containing a fairly complete text of seven of the mimes of Herondas, with fragments of four others. This Herondas was an Alexandrine poet, thitherto known only from a few of his verses preserved by Stobaeus: Athenaeus quoted him twice; the lexicographer Zenobius mentioned him; and the younger Pliny, in a letter to Antoninus, praising the epigrams and iambi of his correspondent, declared them worthy of Herondas. The discovery in the British Museum served to establish the half conjectural poet in the ranks of literature as a younger contemporary of Theocritus, the greatest of the bucolics. He lived in the time of the early Ptolemies, under the reign of Philadelphus (Ptolemy II) and Euergetes. Some verses from the first mime, "The Pander," permit us to fix the date of the full development of his talent between 250 and 240 B. C.

The papyrus itself is in uncial chirography from the second or third Christian century. The text, though presenting some errors and lacunae, is on the whole in a satisfactory state of preservation. This priceless and unique document was first transcribed and edited by Kenyon in 1891. Another recension by Rutherford followed in the same year. Continental editions by Van Herwerden, Bücheler and Crusius were published in 1892. Reinach and Weil published French editions; Girard studied the relations of Herondas to Theocritus; Boisacq issued a French translation and critique. In Germany, Diels investigated the relations of Herondas with Alexandrine art. Among the Italians, Bonghi and Piccolomini published studies and essays in 1892; and in 1893 Setti made the first Italian translation of Herondas.

The mimes which were thus restored to the world from the original manuscript may be described as dramatic idyls,—brief sketches or scenes, with dialogue in iambic trimeter, half comic, half satirical, on topics drawn from the current life of the times. It is this which gives them their chief value, for they preserve at first

hand the manners and temper of an age that in the pre-Christian era is in many respects most startlingly like our own. The subjects are commonplace, sometimes *risqués*, but their treatment is delicate, and clever after the epigrammatic fashion that we are wont to associate with the nineteenth century. Herondas was hardly the Bernard Shaw of his age, but there is much that is Shavian in his genial satire.

Of the seven mimes preserved with tolerable completeness, one, the fourth, happens to be of peculiar interest to the medical profession, on account of its subject, "The Sacrifice to Asklepios." The scene is laid at the famous temple of the god in Kos, the island off the coast of Asia Minor where lived Theocritus, whose tradition Herondas continued, and where perhaps Herondas himself was born, though Magna Graecia and Sicily have equal claims to his nativity. The action is merely that indicated by the title, but it represents not only the ritual of the temple, but also the popular attitude of the time towards medicine and art. An English translation of this mime, however inadequate, seems justifiable, if only for the sake of recalling the conditions of our profession some two and twenty centuries ago.

The Sacrifice to Asklepios.

CHARACTERS.

Kokkale }
Kynno } ..... Two ladies.
Kydilla ..... A servant.
Neokoros ..... The guardian of the temple.

The scene passes in the famous temple of Asklepios at Kos.

Kokkale: Hail, divine Paean, who reignest over Tricca, and inhabitest sweet Kos and Epidaurus! Hail also to Koronis, who bore thee! Hail to thy father, Apollo! Hail to Hygieia, whom thou touchest with thy right hand, and to those whose revered altars are at hand, Panakea, Epion, and Jason! Hail to those healers of cruel maladies, Podalirios and Machaon, who of old destroyed the palace and city of Läomedon and to all the gods and goddesses that inhabit thy hearth, venerable Paean! Be propitious to us, and receive this cock, herald of domestic labors, which unto thee I sacrifice. This is to thee but a trifle, but our possession is little and hardly can one draw from it aught. But for that, we would have offered thee, with our whole heart, instead of a cock, a heifer or a sow full of fat, in payment for the maladies which thou hast healed, O King, extending over us thy beneficent hands.

Kynno: Kokkale, place the votive tablet at the right hand of Hygieia.

Kokkale: Oh, my dear Kynno, what beautiful statues! Who is the artist that wrought this marble? Who is it that dedicated it?

Kynno: The sons of Praxiteles; seest thou not this inscription at the base? And 't is Eutheës, son of Prexon, who offered it.

Kokkale: May Paean be favorable to them, to them and to Euthëes, for their fair works. See, my dear, this child who raises her head towards the apple. Would one not say that she will die, if she have it not? And this old man, Kynno! By the Fates! that goose, how the child strangles it! If the base were not a simple stone one would fancy that it is about to speak. Verily, a time will come when men will give life to stones. Stay, Kynno, dost thou see that statue of Batale, daughter of Myttes? how she holds herself on her limbs! Whoever hath not seen Batale herself, let him look upon this image, and he will not demand the reality.

Kynno: Follow me, my dear, and I will show thee as pretty a sight as ever thou hast seen. Kydilla, call me Neokoros. Am I not speaking to thee, who lookest open-eyed to right and left? Verily, she pays much heed to what I say! she stands there watching me with crab's eyes. Go, I say, call me Neokoros. Thou are but a dunce! No woman, priestess or profane, would find aught good to say of thee; everywhere and always thou plantest thyself like a stone. I take this god to witness, Kydilla, that 't is not my fault if thou make me angry; I take him to witness, I say; the day is not far off when thou wilt rid thyself of this stupid dolt.

Kokkale: Kynno, dost thou believe that all is found ready as our heart desireth? She is a slave, and 't is said that idleness stops their ears.

Kynno: Day hardly appears, before she commits folly upon folly.

Kokkale (to the slave): Stay here, you!—The gate is open and the gallery accessible. Look, dear Kynno, what beautiful works. One would say that a new Athene had sculptured these marvels,—be it said without offense to the goddess. And this naked child, Kynno, if I prick him; will not the blood come? His flesh palpitates in the picture like a fountain of warm water; and this bar of silver, if Myellos or Pataekiskos, sons of Lamprion, saw it, would not the eyes start from their heads in the belief that it is really silver? And this bull, and his leader, and the woman who follows them, and this man with the hooked nose and the other with the snub, are they not all quite alive? If it were not unbecoming for a woman, I would utter cries; I fear lest the bull may do me harm, he frightens me so, Kynno, with his eye that looks me through and through.

Kynno: It is because they are truth itself, my dear, the works of Apelles the Ephesian, whatever may be their subject; and no one will say of him: "This succeeded, such another was a failure." He that should dare to think it, would be an impious, who would not recoil before an offence against the gods. Whoever can see him or see his works, without feeling respect for them, as is due, may he be hung by the heels in a fuller's workshop!

Neokoros: Ladies, your sacrifice has been well received and gives you happy presages. No one better than you has conciliated the favor of Paean. (He prays.) Io, io, Paean, mayst thou be propitious to them,—to them, to their husbands, and to their kindred. Io, io, Paean! So mote it be!

Kokkale: Yea, mighty god, so mote it be! And may we return soon, in good health, with our husbands and our children, to bring thee more noble offerings.

Kynno: Kokkale, do not forget to cut off the cock's thigh, and to give that to Neokoros, and without a word to go put the cake in the mouth of the serpent; moisten also the sacred cakes with wine; we will consume the rest at the hostelry of the temple. And for fear lest Neokoros forget to bring

us any, give us thyself some of the bread of health, for he must at the same time watch over the sacrifices; the bread of health is due us with the portion which reverts to us.

The purpose of this dramatic sketch was apparently as a contemporary satire on a religion whose observances had become empty forms, and on its feminine devotees whose interests were chiefly in the artistic treasures of the temple and, like the temple guardian, in the reversion which they were to receive from their own sacrifice. Therocritus, the master and older contemporary of Herondas, has a very similar passage in his "Syracusans," in which Praxinoas scolds her servant, and with Gorgo, at the temple of Adonis, goes into ecstasies of admiration over the objects of art, *bijouterie et vertu*, which are heaped up there. The same motive may be found also among certain plays of the earlier dramatists, notably in Sophron's "Women at the Isthmian Games," and in the Θεαροί of Epicharmes, where visitors to the temple at Delphi are overcome with wonder at the wealth and splendor of the temple treasure and decorations.

Perhaps the parallel is not altogether lacking in our own day, when patients are sometimes more eager to obtain the bread of health than to pay the adequate sacrifice and oblation demanded in return. Be that as it may, the vivid lines of Herondas serve not only to recreate for us the forms and scene of that old pagan worship of Asklepios, but to portray something of the unchanging human nature which we see today in hospital and office as it was then in the temple of our tutelar deity.

THE TREATMENT OF HYPOSPADIAS.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

Assistant Professor of Surgery, Harvard Medical School; Visiting Surgeon, Boston City Hospital.

HYPOSPADIAS is a congenital defect whereby a part of the floor of the urethra is deficient. This deficiency begins at the glans and, according to its extent, the cases are divided into three groups: (1) the glandular type, (2) the penile type, and (3) the scrotal type.

The glandular type is one in which the deficiency is opposite the glans penis. This is very common and is generally left untreated because no function is interfered with.

In the penile type a part of all the floor of the penile urethra may be wanting and the functional disturbance varies according to the location of the meatus. The nearer the meatus to the penoscrotal angle, the greater the disturbance of function, such as poor control of the stream during micturition, obstruction with dilatation of the urethra from a small meatus, and finally, in the severer cases, some penile deformity, which is due to a longitudinal band underneath the penis.

In the scrotal type, which, fortunately, is rare, the deformity is great and the functional disturbance serious. The penis is greatly curved and the glans is firmly held by the fibrous band to the region of the scrotum, so that coitus is impossible and the location of the meatus is such that the parts are irritated from frequent wetting with urine.

TREATMENT.

In that the glandular type causes no particular inconvenience or functional disturbance, restoration of the urethra is not often attempted, both because there is no pressing indication and because it is difficult to establish a canal through the glans penis. The scrotal type is so rare and its attempted relief is attended with so many difficulties, contra-indications and failures that it will not be considered further here.

There are various plastic operations for the treatment of the penile type of hypospadias. In several cases operated upon by the writer, the best results have been obtained by using a flap operation described by Thiersch in 1869 for the treatment of epispadias and adapted later by Anger for cases of hypospadias. This technic, modified slightly according to the exigencies of each case, has been used and satisfactory results obtained. More than ordinary care is required in the various steps of the operation. Instruments should be small and the flaps handled with delicate hooks and forceps so as to avoid unnecessary injury. Hemorrhage is not troublesome.

TO STRAIGHTEN THE PENIS.

This is accomplished by making one or two transverse incisions through the tissue below and between the corpora cavernosa, generally extending somewhat deeply into the latter. The penis is then extended so as to open the wounds and the opposite ends of the incisions are approximated and thus these wounds are closed longitudinally. Hemorrhage is easily controlled by sutures, preferably of fine silkworm gut or silver wire. Examination will determine whether the straightening operation will be necessary and about six months should elapse after this step before making a urethra, in order to allow for all contraction and to establish good circulation for the flaps which are to be made later.

THE FORMATION OF THE URETHRA.

Incisions are made so as to form two flaps, A and B, (Fig. 1), the former to be reflected over a catheter and the latter to be stretched over all the denuded area. A traction stitch may be passed through the glans and the penis held retracted on the abdomen. Flap A is made with its base 1-4 at the line of the urethra and should be about three-fourths of an inch wide. The incision 1-2 should include some of the tis-

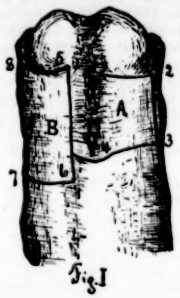


Fig. I

sue of the glans so as to make the new meatus reasonably near the end of the penis. The incision 3-4 should be carried proximal to the meatus and then across to meet incision 5-6. The flap should be as thick as the tissues will allow and should be dissected to the base line 1-4. The flap B is then formed by making incision 5-6 which is carried about one-half an inch proximal to the original meatus. The incisions 5-8 and 6-7 are carried around toward the dorsum of the penis so as to allow the formation of a flap which, eventually, can be stretched to incision 2-3. Occasionally the meatus will have to be enlarged, as was necessary in the case of a child of eight years (Fig. 1), because the opening was so small as to act as a stricture. Hence, a short ventral incision was made. Next, a small rubber catheter is inserted *into the bladder*, which is to remain seven to fourteen days according to circumstances, although it may have to be changed for one reason or another. In one case where the deficiency involved only a small portion of the penile urethra, a short tube included only the distal two inches of the

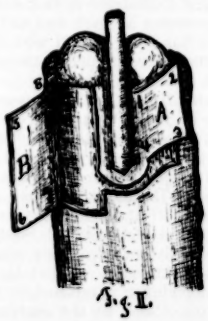


Fig. II.

penis and was easily retained by a stitch through the glans (Fig. 3). One subsequent minor operation was required to close a small fistula which persisted in the vicinity of the original meatus and finally a catheter had to be inserted into the bladder so as to keep the field of operation dry. Care is needed to retain the catheter. The urine is conducted through a tube to a bottle by the bedside. A little skin should be trimmed off the proximal edge 3-4 6-7 so as to make an even border. The stitches are next applied. Three or four mattress sutures of fine silkworm gut, fine wire, or horsehair, according to circumstances, are placed in such a way (Fig. 3) as to draw flap B towards the under side of the penis and also retain flap A folded over the catheter with its free border 2-3 in contact with incision 5-6 as illustrated. There will be no undue tension of the flaps if cut suffi-

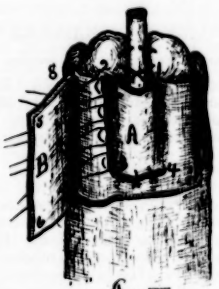


Fig. III.

ciently large. The skin around the proximal side of the meatus should be freed near the base of flap A (Fig. 2) and sutured to the reflected border 3-4 (Fig. 3). Finally, flap B is drawn across the wound and its borders sutured on three sides. Thus the flap B covers the line 3-4, so that 3-4 and 6-7 are not opposite each other. If the incision 1-2 is made in the substance of the glans and 5-8 is correspondingly distal, the new meatus will be sufficiently near the end of the penis. The operations devised for restoring

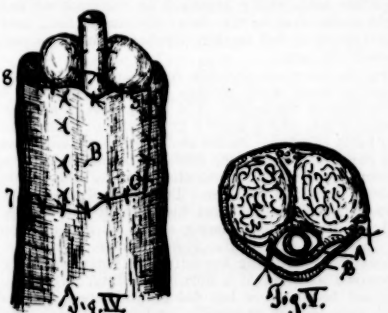


Fig. IV. Fig. V.

the urethra through the glans penis are not very satisfactory and, if successful, a stricture is apt to develop. When the operation is completed the parts are protected by a sterile gauze dressing. A moderate amount of edema is to be ex-

pected but this subsides soon. The drying of the mucous membrane and the crusts which may obstruct at the new meatus are prevented by the application of boric acid ointment. Careful attention must be paid to the wound during the convalescence and the catheter must be kept in perfect order. The latter is borne even by small children without discomfort or risk of urinary infection and should be retained until the wound is healed.

Clinical Department.

A CASE OF PELLAGRA.*

BY WARREN H. SHERMAN, M.D., GRANITEVILLE, MASS.

The patient is a man 68 years old. He was born in England and came to this country 26 years ago. With the exception of four visits to his former home, he has always lived in Massachusetts. He has not been out of this state for nine years, and has never been farther south than New York. His occupation while in England was that of a farmer, but since he came to America he has always worked in a woolen mill, except for a short time 20 years ago when he worked as a farm hand. He has been a moderate user of tobacco and alcohol. The family history is negative. His wife is dead. There are five children, all living. He has always been healthy with the exception of several attacks of indigestion at intervals of from one to three years. Some time last March or April he began to have slight epigastric discomfort after eating, and to get tired easily. I was called on July 30, when he complained of constant pain in the epigastric and right hypochondriac regions, at times becoming severe. At this time he was constipated, which has alternated with diarrhea throughout the attack. He slept well, but during the day was more irritable than usual. His appetite was poor. About the 10th of August a dark erythema appeared on the back of his left hand, which extended from the wrist to the second joints of the fingers. After three or four days the same thing appeared on the back of the right hand, and on the face, the cheeks first, and gradually extended to chin, forehead, ears, nose and back of the neck.

By the time the eruption had extended thus far, there appeared scaly patches on the cheeks, and a little later on the hands. The scales were of a much darker color, which gave a brownish appearance to the parts affected. Bullae and vesicles appeared on the hands but not on the face. Later nearly all the epidermis exfoliated from the backs of the hands leaving them raw and sore. The backs of the fingers were affected to the tips but not at all on the palmar surface, there being a line of demarcation at the sides, where the fingers came in contact. There was no itching nor pain, the sensation being described as more of a burning feeling. The face did not become sore but did desquamate. He has had very severe stomatitis and salivation; some nausea but no vomiting. The tongue was coated at first but later became red and beefy. At one time he complained of difficulty in swallowing, and of a burning sensation in the throat and under the sternum. There has been more or less pain in the epigastrium throughout his illness but it has not been severe since the eruption appeared.

There were no hallucinations nor delusions, but there was a good deal of mental depression. His memory was somewhat impaired. He seemed dull and was slow in replying to questions. His voice was weak and he had a shuffling gait. The temperature has been normal; the pulse slightly accelerated; urine negative. He denied having eaten maize or any corn products. He has lost considerable weight.

At this time the hands have ceased to desquamate and have entirely healed, the new epidermis being rather darker in color than normal. The patient is feeling better, his voice is stronger and he walks better, but does not care to go out very much, and takes very little interest in affairs. There is some anesthesia of the skin since the eruption has disappeared.

* Read at a meeting of the Middlesex North District Medical Society, Nov., 1912.

PELLAGRA, WITH A REPORT OF CASES.*

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and
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IN his first work on insanity in 1883, Professor Spitzka[1] states: "Pellagrous insanity will not be discussed in this volume as it does not occur in America and is limited to such countries as Italy, where maize forms a staple article of diet and where the disease known as pellagra, attributed to living on spoiled maize, occurs in endemic form." In his first edition on Neurology and Psychiatry, Dr. Peterson[2] said that pellagra occurred eminently in poverty-stricken and desolate districts and was due presumably to the use of diseased and fermenting maize.

It will not be necessary to go further into the history of pellagra. Suffice it to say that this disease was not looked for in this country; that at least its presence as such was not recognized or else that it has been classed with other forms of disease either in reference to the skin, the intestinal tract or the nervous system.

In the United States the first cases of pellagra were reported by Dr. Gray of New York and Dr. Tyler[3] of Massachusetts in 1864. Nothing more was heard of the disease until 1902 when Dr. Sherwell[4] of Brooklyn, New York, reported two cases among Italian sailors soon after entering port. In 1907 it was again recognized by Drs. Merrill[5] and Babcock[6] of South Carolina and independently, at about the same time, by Dr. Searcy[7] of Alabama, so that in 1911 there were cases of pellagra diagnosed in the state of South Carolina alone, to the number of 2100. Notwithstanding, there still appears to be some doubt as to the presence of pellagra in some of the United States as only twenty-seven states have reported the probability of cases.

At the beginning of 1911 the number reported was 7000, though many writers believe this

* Read (in part) before Providence Medical Society, Apr 1, 1912.

number to represent only a small proportion of the cases actually in existence. The reasons for this contention are that the symptoms might have seemed nothing more than the result of a slight sunburn and indisposition and so never have reached the physician; that the physician may have been unable to recognize the conditions as such and that possibly the absence of a well defined system of reporting cases has had its effect.

It was supposed that the New England States were immune to the disease, but in the summer of 1910 several cases were reported from Rhode Island. Dr. Henry A. Jones, Physician to the State Institutions of Rhode Island, recognized the first case of pellagra in Rhode Island and shortly after, at the same institution, a second case was seen by him. Both were inmates of the State Almshouse. Soon, thereafter, a patient at the State Hospital for the Insane gave evidence of having the disease and before the fall of 1912, twenty-seven cases of pellagra had there been discovered. Therefore, the opinion that there are probably many more cases undiagnosed in various parts of the state seems well founded. At present one authority is rather emphatic in the statement that the majority of the people in the South are suffering from some form of corn-poisoning, some from merely gastric disturbances and others from an auto-intoxication which undoubtedly is due to a toxine from corn.

Although there is more or less uniformity in the symptoms constituting this disease, observers differ as to the prominence of these symptoms, due largely to special characteristics of the individual case and to some extent to the personal equation of the observer. Owing to an accompanying involvement of the cutaneous, the gastro-intestinal and the nervous system, the dermatologist, the gastro-enterologist and the neurologist, as well as the psychiatrist, claim the malady for his particular field. Since some form of mental aberration usually accompanies the disturbance, it is probably better known to the neurologist and the psychiatrist.

In that so little is really known about the disease process, an exposition of the same is hardly warranted at present. Tanzi,[8] the Italian psychiatrist, defines it as an endemic disease of remittent type, generally afebrile, which sooner or later becomes fatal and which is characterized by cachexia, gastric-intestinal, cutaneous, motor and psychical phenomena.

The etiology of the disease is unknown. Until recently practically all Italian writers accredited the maize hypothesis. Tanzi claiming to voice the opinion held in Italy, does not question the maize origin in his text-book published in 1909. He states that it is more prevalent where the people are poor and where corn is the chief article of diet and especially so after rainy seasons, since the corn has had little chance to ripen. His theory is that the causative agent is in some way connected with the growth of mould on the corn and in support thereof shows that several varieties of non-pathogenic bacilli which can be isolated from these moulds are identical with the bacilli found in the feces of the pellagrins. He does not regard the introduction of the bacilli into the body as necessary, but believes that the toxins produced by them when in the moulds are operative as soon as taken into the system. Furthermore, he cites Lombroso[9] as having extracted a substance of alkaloidal nature which he called Pellagrozeine, obtained by dissolving damaged corn in alcohol. Bass[10] of New Orleans after inoculating corn media with pellagrous excreta fed it to fowl, of which one developed a diarrhea and upon whose legs appeared an erythema. Many other theories have been advanced The ameba, protozoon, continued use of cotton-seed oil, a bite from a mosquito or the smiulium venestum (black fly) have been honored as causes. Today we are not much further advanced in the knowledge of the cause of pellagra than we were thirty years ago. During the last year and a half the writers have watched the development and course of seventeen cases with special reference to the nervous and mental symptoms as well as to ascertainable clinico-pathological facts. Symptomatologically cases may be classed as the acute fulminating type which terminates fatally in from two to six months and the chronic type with remission, the active symptoms of which become apparent in the spring and summer. The skin lesions are of two types, a simple erythema and the bullous formation.

The development of the disease has no definite course. The skin, the intestinal tract or nervous system may give first evidence of disease. No definite order of the disturbance seems thus far marked. There is very little variation in the appearance of the skin lesion, its subsequent course and clearing evincing the glove and stocking appearance of either erythema or bullous eruption. It grows to a livid hue, later exfoliation of which leaves the skin hard and fissured with gradual change to a smooth and shiny surface. The gastro-intestinal disturbances are always accompanied by a diarrhea with its usual secondary state of rapid and profuse loss of water from the bowels. Possibly the most prominent and variable reactions are those in the central nervous system. Pupillary disturbances are not constant but the deep reflexes show a change in every case so that most writers insist that the characteristic sign of the trouble is constancy of exaggerated reflexes. They offer practically no statement as to either subjective or objective sensory disturbances.

CLINICAL FINDINGS.

In the following cases the point of difference from other observers centers around the symptom complexes associated with the central nervous system. A short statement will be made of

the seventeen cases with an attempt to emphasize this point of difference.

CASE I. M. G., female, age 40, American. Admitted May 26, 1899; diagnosis, low grade imbecile. January, 1911, she developed diarrhea. In May following, skin trouble appeared. Physically there was tuberculosis of both lungs. The knee jerks were absent and she winced when pressed over the posterior tibial nerves. She was very weak.

CASE II. M. R., female, age 29, American. Admitted Oct. 31, 1901. Diagnosis dementia precox, paranoid form. In May, 1911, there appeared an erythematous eruption on her hands and forehead. Shortly afterwards a diarrhea set in. Physically there was tuberculosis of both lungs. Knee jerks were absent and she winced when the posterior tibial nerves were pressed.

CASE III. J. C., female, age 71, American. Admitted May 14, 1883. Diagnosis dementia precox, paranoid form. On July 7, 1911, skin lesions appeared with an associated profuse diarrhea. Her lungs were in healthy condition but knee jerks were absent. There were no hyperesthesias.

CASE IV. A. B., female, age 36, American. Admitted February 19, 1907. Diagnosis low grade imbecile. In January, 1911, the patient began to lose weight. The following March, diarrhea set in. In August there was a characteristic dermatitis. There was present tuberculosis of both lungs. Knee jerks were present but there were no sensory disturbances.

CASE V. K. B., female, age 38, Canadian. Second admission January, 1907. Diagnosis dementia precox paranoid form. In August, 1910, skin changes appeared. The patient complained of pains in her legs with a later development of ataxia. In October, 1910, attacks of profuse diarrhea set in. Physically her lungs were free. Her knee jerks were absent and there was a double foot drop with complaint of severe pains in her legs, whether pressure be great or whether it be only the bed linen.

CASE VI. L. R., female, age 38, Canadian. Admitted February, 1909. Diagnosis, dementia precox, paranoid form. In May, 1911, an erythematous lesion appeared on the hands and neck with an associative slight diarrhea. She made an apparent mental improvement during this stage. Physically there was no lung infection. Her knee jerks were absent but both legs were painful to touch.

CASE VII. M. B., female, age 50, Ireland. Third admission February, 1908. Diagnosis alcoholic hallucinosis. In August, 1910, an erythema appeared on the arms associated with a profuse diarrhea. During this stage, she became extremely excitable and complained of pains in her legs. Physically there was no lung impairment. Her knee jerks were absent and she was unable to walk, owing to an ataxia. Hyperesthesia of the lower extremities was evident.

CASE VIII. A. G., female, age 40, U. S. A. Admitted June, 1906. Diagnosis, dementia precox, paranoid form. In August, 1912, skin lesions appeared with only a slight diarrhea. Physically there was no evidence of tuberculosis. Her knee jerks were unequal, the right was absent and the left was diminished though sensation was undisturbed.

CASE IX. D. C., female, age 52, U. S. A. Admitted July 25, 1888. Diagnosis, dementia precox. In August, 1912, there began a diarrhea with accompanying skin lesions. Physically no evidence of tuberculosis. Her knee jerks were absent and she winced on pressure over the posterior tibial nerves. Later she developed general muscular twitchings and contractures, became markedly asthenic and soon thereafter died.

CASE X. M. C., female, age 64, Russia. Admitted December, 1907. Diagnosis, senile dementia. In July, 1911, the patient developed a severe diarrhea. In September following skin lesions appeared. Physically there was no lung infection. Her knee jerks were diminished and there was no sensory disturbance.

CASE XI. L. B., female, age 63, American. Admitted in 1887. Diagnosis, dementia precox. In August, 1909, there was a persistent diarrhea. The following winter saw improvement. In August, 1910, an erythematous eruption appeared on the hands, accompanied by diarrhea. The winter of 1910, saw further improvement. In July, 1911, the diarrheal stage was renewed and in August there were skin lesions. Physically there was no evidence of tuberculosis. Her knee jerks were diminished with no sensory disturbances.

CASE XII. G. A., female, age 39, American. Admitted January, 1908. Diagnosis, dementia precox, paranoid form. In May, 1911, an erythema on the hands appeared followed by a slight diarrhea. Physically there was tuberculosis of both lungs. Her knee jerks were diminished and there were no sensory disturbances.

CASE XIII. L. B., female, age 47, Canadian. Admitted February, 1912. In March patient developed gastro-intestinal disturbance with a diarrhea. In May a bullous eruption appeared on her arms and forehead. Physically there was no evidence of tuberculosis. Her knee jerks were diminished and there was no sensory disturbance.

CASE XIV. A. W. A., male, age 25, U. S. A. Admitted June 20, 1910. Diagnosis, dementia precox, hebephrenic form. In August, 1912, patient developed a dermatitis without any marked manifestations of gastro-intestinal disturbance. Physically no evidence of tuberculosis. His knee jerks were diminished and there was no evidence of sensory disturbance.

CASE XV. L. B., female, age 55, Canadian. Admitted March, 1911. Her mental condition was ungrouped. In April, 1911, a diarrhea set in. In June skin difficulty evinced itself. In September she developed convulsions. Physically there was no evidence of tuberculosis. Her knee jerks were exaggerated but finally ceased several weeks before death with the development of marked ataxia and pains along course of nerves.

CASE XVI. L. D., female, age 40, U. S. A. Admitted May 9, 1899. Diagnosis, manic depressive insanity, chronic excitement. In August, 1912, skin manifestation appeared with an accompanying diarrhea. Physically no evidence of tuberculosis. Knee jerks exaggerated but there was no pain on pressure over calves of legs.

Case XVII. C. M., male, age 48, English. Admitted July 21, 1912. Diagnosis, alcoholic hallcinosis. In July a dermatitis was present but there was no appreciable abnormality in bowel evacuations. Physically no evidence of tuberculosis. Knee jerks were active and no sensory disturbances.

In addition to these cases cited, there are ten others upon which no clinico-pathological examinations were made and which will be referred to only with reference to the mode of onset of condition and the accompanying neurological disturbance. Of these ten cases, five showed primarily skin lesions, whereas the others began with the diarrheal stage. The reflexes in six were absent and in four they were noted as being diminished. An examination of these reflexes prior to the development of the pellagrous syndrome showed three unmentioned, one diminished, one increased and five normal. The mental condition of these cases were four dementia præcox, two manic-depressive insanity, two alcoholic dementia, one arteriosclerotic insanity and one senile dementia. It might be stated that in one of these cases, the patient improved mentally during the active dermato-diarrheal stage. One became very much disturbed during the intercurrence of the disease process and five grew progressively worse and death resulted.

PATHOLOGICAL FINDINGS.

Although the causative factor of this disease has not been determined there appears to be sufficient data present to indicate that the complex reaction is one due to a toxine or an infection which produces changes in the blood and spinal fluid. The disturbance is also accompanied by a non-systemic degeneration of the cerebrospinal axis. It therefore produces, on the one hand a more or less distinctive blood picture, and on the other hand a cellular and diffuse nerve fibre degeneration of the cerebrospinal axis.

An examination of the smears from the exudative dermatitis revealed masses of fat and coagulated serum, degenerated polynuclear leucocytes and a few normal red blood cells with shreds of tissue.

The urine examination showed nothing pathological except one case which presented an apparent chronic interstitial nephritis.

The feces of these cases during the diarrheal stage, were examined and showed neither occult blood nor urobilin. Smears showed mostly Gram positive bacilli and agar growths revealed pure streptococcus organisms in contradistinction to the analyses of several diarrheal stools made at the same time from cases not considered pellagrous, but of acute dysentery from which the Shiga bacillus was cultivated.

Of the seventeen cases, however, eight gave a positive Von Pirquet tuberculin skin reaction. (Chart No. I.)

The blood examination showed striking features in the variation of percentage of hemoglobin from 60 to 100%; there was an approximately normal red blood count. The white blood cells averaged more than 6000 in eight of the seventeen cases, In one case it was as low as 4600. The differential count showed a distinct increase in the mononuclear lymphocytes and a decrease in the polynuclear leucocytes. The highest polynuclear leucocyte count was only 73% and the lowest mononuclear lymphocytes count was 18%. The only exception to normal appearance, shape and size was one case in which there was a definite polychromatophilia. (Chart No. II.)

Nine out of the seventeen cases were submitted to lumbar puncture, and the spinal fluid was examined cytologically, chemically and for the complement deviation. The reaction was distinctly alkaline in five and neutral in four. In only one were there no pleocytes. The remaining eight showed a count of from two to nine small lymphocytes per cmm. The quantity of globulin content was ascertained by the Nonne-Appelt, the Noguchi and the Ross-Jones methods which showed no increase in any by methods I and II, and method III was positive in six out of nine cases. Each case evinced the presence of a reducing body. The complement deviation in all cases was negative in the spinal fluid and in two of the blood sera.

The remaining blood sera were omitted from examination. The blood sera of two cases not punctured were also negative. (Chart No. III.)

The inoculation of guinea-pigs with the serum of pellagrous cases has thus far produced no disturbance.

Of the entire group of cases, twenty-seven here referred to, eight have died. Of the eight, four have been autopsied. Two of the autopsies revealed tubercular conditions in both the lungs and the intestines The central nervous system was not examined.

There are few reports of clinical cases with necropsies in this country. Dr. Spiller[11] was the first to publish two cases with necropsies in which the larger cell of the cortical layers presented degeneration and the cell bodies evinced chromatolysis. There was also diffuse degeneration of the antero-lateral and posterior columns as well as a degenerated anterior horn cell. Battan considers the condition a dengeneration of posterior columns of root origin. Tanzi has described the condition in reference to the investigations of Tuczuk and Belaundo[12] as a combined systemic degeneration. Babes and Sion[13] describe the condition as a posterior degeneration of root origin differing from tabes dorsalis in that it presents less involvement of Lissaur's tract, but a decided affliction of Clarke's column.

In our series of cases L. B. and D. C. have died during the height of their disease process and came to autopsy presenting very interesting characteristics. L. B. will be referred to at some length, but since D. C. has recently died,

microscopical findings of the central nervous system will have to be deferred.

L. B. was a poorly nourished and poorly developed woman of advanced asthenic condition. Barring the unessential details, it may suffice to state that her thoracic viscera showed only a low-grade bronchopneumonia and a healed tubercle in the right upper lobe. The abdominal viscera showed only a passive hyperemia with a marked injection of the upper and lower intestines.

The examination of the cerebrospinal axis demonstrated no gross lesions. Sections from the brain showed the following: Paracentral area: There were regressive changes in the pia which was free from any infiltration; in the cortex the nerve cells stained diffusely and the largest pyramids showed incipient and well advanced axonal alterations viz. glassy swelling of the centres of the cells, destruction of the central stainable substance with preservation of the stainable bodies in the periphery of the cells and displacement of the nucleus toward one side. The neuroglia showed moderate progressive change with a definite increase in the satellite cells which occurred about the nerve cells or as independent clusters as well as along many of the blood vessels. There was also considerable pigment in the ground substance largely within the neuroglia cell bodies.

The other sections from the frontal and calcarine areas showed no additional changes. The section from the cerebellum showed perhaps, the Purkinge cells staining more diffusely and some of them showed a fairly typical axonal alteration.

The lumber cord section evinced the pia essentially normal but many of the ventral horn cells indicated a well marked axonal alteration and others showed only incipient axonal changes.

The cerebral arteries showed a moderate degree of atheromatous degeneration without infiltration of the intima.

To sum up: there appears to be several factors standing out prominently and distinctly of value. First, clinically fifteen out of the twenty-seven cases evinced absent knee jerks, eight evinced distinct evidence of peripheral polyneuritis even to the extent of foot drop and muscular atrophy; five cases had diminished knee jerks. Secondly, as in low toxic conditions as well as infections there is a distinct change from the normal blood picture which in this series of cases, and not unlike that seen by other observers, the differential blood count was one of a small mononucleosis. Thirdly, the cytological count in the spinal fluid although small, two to nine cells per cmm., appears to be of sufficient weight to indicate a chronic inflammatory process. Fourthly, the microscopic findings in the central nervous system are such as are comparable essentially to that rare disease known as "Central Neuritis," the nerve cells showing an infectious or febrile condition of essentially a parenchymatous reaction.

If, on the one hand pellagra is to be considered of a toxic or infectious etiology and showing central neuritic evidence; and on the other hand, is distinctly an afebrile condition of unknown bacteriology, is it not possible, or even probable for pellagra to produce neuritic symptoms of central as well as of peripheral origin, such as has been seen in the clinical exposition of these cases?

Thanks are due to Dr. Arthur H. Harrington, Superintendent of the State Hospital, for his kindness in allowing this work to be carried on, to Dr. C. I. Lambert, of New York City, who kindly assisted in the microscopical analyses of the central nervous system, and to the members of the staff of the hospital for their help in gathering data for this paper.

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CHART No. I.

VON PIRQUET TUBERCULIN REACTION.

Name.	*Reaction.*
M. G.	x x x
M. R.	x x x
J. C.	x x
A. B.	x x x
K. B.	x x x
L. R.	x x x
M. B.	o o o
A. G.	Not ascertained
D. C.	Not ascertained
M. C.	x
L. B.	o o o
L. B.	Not ascertained
G. A.	x x x
A. W. A.	Not ascertained
L. B.	Not ascertained
L. D.	Not ascertained
C. M.	Not ascertained

CHART No. II.

BLOOD EXAMINATIONS.

NAME.	HB.%	R. B. C.	W. B. C.	CHARACTER.	DIFFERENTIAL.		ABNORMALITIES.
M. G.	90%	6,000,000	7200	Normal	Lympho.	21	None
					Poly's	75	
					L. M. & T.	3.5	
					Eosin.	.5	
M. R.	100%	4,500,000	8000	Normal	Lympho.	40	None
					Poly's	49	
					L. M. & T.	10	
					Eosin.	1	
J. C.	70%	3,760,000	6200	Normal	Lympho.	34	None
					Poly's	52	
					L. M. & T.	9	
					Eosin.	5	
A. B.	60%	4,900,000	4600	Normal	Lympho.	41	Poor color
					Poly's	40	
					L. M. & T.	18	
					Eosin.	1	
h. B.	90%	6,230,000	5600	Normal	Lympho.	40	None
					Poly's	54	
					L. M. & T.	5.3	
					Eosin.	.7	
L. R.	95%	5,540,000	5600	Normal	Lympho.	40	None
					Poly's	54	
					L. M. & T.	5	
					Eosin.	1	
M. B.	80%	6,240,000	6400	Normal	Lympho.	52	None
					Poly's	40	
					L. M. & T.	7	
					Eosin.	1	
A. G.	90%	4,900,000	5700	Normal	Lympho.	30	None
					Poly's	60	
					L. M. & T.	8	
					Eosin.	2	
D. C.	80%	5,340,000	6000	Normal	Lympho.	43	None
					Poly's	52.6	
					L. M. & T.	3.3	
					Eosin.	1.1	
M. G.	90%	5,800,000	6000	Normal	Lympho.	42	None
					Poly's	48	
					L. M. & T.	10	
					Eosin.	0.0	
L. B.	70%	4,800,000	7000	Normal	Lympho.	26	None
					Poly's	65	
					L. M. & T.	8	
					Eosin.	1	
L. B.	85%	4,800,000	7200	Normal	Lympho.	41.5	None
					Poly's	49.5	
					L. M. & T.	5.5	
					Eosin.	3.5	
G. A.	100%	5,750,000	5800	Normal	Lympho.	35	None
					Poly's	60	
					L. M. & T.	4	
					Eosin.	1	
A. W. A.	(Not ascertained)						
L. B.	80%	4,780,000	6000	Normal	Lympho.	18	None
					Poly's	73	
					L. M. & T.	8	
					Eosin.	1	
L. D.	90%	5,900,000	5400	Normal	Lympho.	26	None
					Poly's	69	
					L. M. & T.	3.1	
					Eosin.	1.9	
C. M.	(Not ascertained)						

CHART No. III.

SPINAL FLUID ANALYSES.

NAME.	COLOR.	REACTION.	CELLS PER CMM.	TYPE OF CELL.	CHEMICAL TESTS. NO. I.	NO. II.	NO. III.	REDUC. BODIES.	WASS. SP. FL.	WASS. BL.
M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
M. R.	(Not ascertained)									
J. C.	Clear	Neutral	4	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
A. B.	(Not ascertained)									
K. B.	Clear	Alkaline	3	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	Neg.
L. R.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
M. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
A. G.	(Not ascertained)									
D. C.	(Not ascertained)									Neg.
M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Neutral	9	Lympho.	Neg.	Neg.	x x	x x	Neg.	Neg.
G. A.	Clear	Alkaline	0	0	Neg.	Neg.	x x	x x	Neg.	OX
A. W. A.	(Not ascertained)									
L. B.	(Not ascertained)									Neg.
L. D.	(Not ascertained)									
C. M.	(Not ascertained)									

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Radical operations on the rectum for malignant growths as a rule injure the muscles and nerves to so great an extent that rectal control is damaged or lost. In most cases a permanent colostomy through the left rectus muscle or a sacral anus gives good functional results and permits a wide dissection of the entire rectum with removal of the fat, fascial structures and lyphatic glands, and greatly diminishes the operative risks. Ninety per cent. of the operative deaths are due to sepsis, usually fecal leakage from attempts to conserve function. Preliminary exploration through the abdomen is necessary to avoid operating on patients with hopeless metastasis. This may be omitted in those who for any reason are poor surgical risks, to reduce hazard. In such cases the sacral operation is indicated.

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Two cardinal principles underlie the treatment of fistula in ano; first, the separation of the fistulous tract from the bowel, and second, the closure of the communication with the bowel and removal of the diseased rectal tissue. The operation proposed is the removal of the lower bowel to a point just above the level of the internal fistulous opening by the Whitehead method of operation, with thorough curettage of all the fistulous tracts. When no internal opening can be demonstrated, the bowel is removed at the line of insertion of the levator ani muscle, care always being taken to keep the dissection near the mucosa and to avoid all injury to the sphincters. The healthy skin and mucosa are approximated with interrupted silk sutures. This method has been employed without mortality in 105 consecutive cases, 96 of these were histologically non-tuberculous, and 9 were histologically tuberculous. In all the cases complete and permanent cure was obtained, with preservation of normal function in all but four, in all of whom, more or less destruction of one or both sphincters antedated the operation.

DISCUSSION.

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M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
M. R.	(Not ascertained)									
J. C.	Clear	Neutral	4	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
A. B.	(Not ascertained)									
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L. R.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
M. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
A. G.	(Not ascertained)									
D. C.	(Not ascertained)									Neg.
M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Neutral	9	Lympho.	Neg.	Neg.	x x	x x	Neg.	Neg.
G. A.	Clear	Alkaline	0	0	Neg.	Neg.	x x	x x	Neg.	OX
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DR. KENNETH A. J. MACKENZIE, Portland, Oregon, objected to the resection of the mucosa in fistulae-in-ano from the view point that if done in the presence of an infection severe sepsis might result and primary union become impossible. The advantages of radical operation are to be found in tuberculous fistulae, for here the dangers of the ordinary operations are very serious, because they open up the granulomatous material lining the tract and allow dissemination of the tubercle bacilli.

THE EVOLUTION OF NEW BONE AND ITS RELATION TO THE REPRODUCTION OF JOINTS AFTER ANKYLOSIS.

BY JOHN B. MURPHY, CHICAGO, ILL.

The accurate appreciation of the embryology of bone is essential to a fuller understanding of the pathological processes and the reproductive power of bone. Ossification occurs in long bones through the division of the cartilage cell and the disturbance of the cartilage cell membrane from what is called the ossific centre. The osteoblasts then spread through all of the cartilage of the shaft, or better, the cartilage cells become transformed or displaced by osteal cells from one epiphysis to the other. This is what is known as cartilage ossification. The sencond type of ossificaton whch takes place in flat bones, and particularly the bones of the face, is an ossification in a white fibrous tissue. In the embyro we have the representation of the bones of the face in a white fibrous connective tissue; ossification starts in the centre or margin of this and spreads through all of the tissue. Ossification of white fibrous tissue takes the place pathologically in the continuation of the periosteum as represented in the white fibrous tissue of the capsule of joints, particularly of the hip joint. Ossification in white fibrous tissue takes place in the white fibrous strands of the muscle in myositis ossificans. Ossification can take place and does take place in blood clots that occur near a lacerated periosteum or near a fracture. This ossification is believed to be due to osteoblasts that have been carried by the blood stream from the fracture or from the lacerated periosteum as was advocated by Macewen. The degree of ossification is limited by the periosteum or may be limited by the covering of the end of a bone by any of the mesoblastic type of tissues. In other words, when a fracture occurs if the ends of the bone be covered with a fascia and muscle or a quantity of fat, no effort is made by the osteoblasts of the medulla the compact bony tissue, or the subperiosteal layer to reproduce bone across the gap. If, on the other hand, the gap between the ends of two bones is filled by a blood-clot and not by an organized connective tissue in fractures of the long bones, a large area, an inch, an inch and a half, or two inches may be spanned by the osteogenetic elements in their forces to reunite the bone. In fractures of the flat bones there is no such prodigious effort made to produce a union, they rarely span one-quarter or one-half inch in their effort at the reestablishment of union after fracture. This is noticeable in the mandible and in the trephining operations and fractures of the skull.

We can to advantage divide the osteogenetic elements of bone, or liken the osteogenetic elements of bone to that of a tree, the medulla representing the trunk and always carrying the greatest osteogenetic potency; the Haversian canals, canaliculi and lacunae representing the branches of the tree, always carrying osteoblasts on the walls of the Haversian vessels; and the leaves are represented by the subperiosteal osteogentic layer in which in youth there is an enormous osteogenetic potency, in middle age a mild degree, and in advanced age no osteogenetic power. The periosteum of the epiphysis has no subperiosteal osteogenetic potency or inductiveness. The fact that this has no bone producing power accounts for the absence of callus and osteomata on the side of joints following fractures of the epiphysis. It will therefore be seen in the regeneration of bone we must utilize either the osteoblasts of the medulla, the Haversian canals of the lacunae or the osteogenetic inductiveness of the subperiosteal zone. We can set it down as a fairly well established fact that in bone transplantation and bone grafting and bone reunions the following principles must be complied with:—

1. The periosteum fully detached from bone and (1) transplanted into a fatty or muscle-tissue bed in the same individual, if he be young, may produce a lasting bone deposit; (2) transplanted into another individual or animal of the same species and under the same conditions, it rarely, if ever, produces a permanent bone deposit; (3) transplanted into another species it never produces a permanent bone deposit.

2. Periosteal strips elevated at one end from the bone and attached at the other, if turned out into muscle or fat, reproduce regularly bone on their under surface for a greater portion of their entire length.

3. Transplanted into other individuals or animals or same species and contacting at one end with exposed or freshened bone it rarely produces permanent bone, even for a small extent at its basal attachment, and never produces bone for its full length.

4. Bone with its periosteum transplanted into muscle, fat, etc., in the same individual, and free from bony contact, practically always dies and is absorbed, except in the case of very young children or infants. Transplanted into another species it is always absorbed.

5. Bone transplanted without the periosteum into the muscle or cellular tissue always dies and is ultimately absorbed.

6. Bone with or without periosteum transplanted in the same individual and contracted with other living osteogenetic bone at one or both ends of the transplanted fragment always becomes united to the living fragments and acts as a scaffolding for the reproduction of new bone of the same size and shape as the transplanted fragments if asepsis is attained. This new bone increases to such size as is necessary to give the support required by Nature in the extremity in which it has been placed. It will scaffold the production of new bone even into the joint when it is surrounded by capsule, and tuberosities are produced in about the regular location, as in the normal anatomic conformation.

7. The transplanted fragment, no matter how large or how small, is always ultimately absorbed. The role it plays is to give mechanical support to the capillaries and blood vessels with their living

osteogenetic cells, as they advance from the living bone at both ends of the transplanted fragment into the Haversian canals, canaliculi and lacunae of the transplant. New lamellae are deposited around the new capillaries and these lamellae fit into and adjust themselves in the graft, so that the bony union is actually formed and mechanical support given long before the transplant is entirely absorbed and replaced by new bone. Ultimately, all of the transplant disappears as new lamellae are formed by the osteoblasts, and the graft lamellae are removed by the osteoclasts.

The practical application of bone transplantation is to the following conditions:—

A. To correct deformities resulting from defects of development, as aplasic extremital bones-radius, ulna, humerous, tibia, fibula and femur, and congenital saddle-nose, aplasis mandible, etc.

B. To reproduce union in ununited fractures.

C. To replace bone removed by destructive infections, osteomyelitis, tuberculosis, lues, etc.

D. To restore or supplant fragments dislodged or destroyed by fractures, as the head of the humerus, head of femur, shaft of tibia.

E. To replace bone removed for non-malignant neoplasms, cysts, myeloma, osteitis fibrosa, etc.

F. To replace bone removed for encapsulated malignant disease, giant-cell and chondral sarcoma, etc.

Dr. Murphy submitted a series of cases in which bone transplantation has been restored to to fulfill the requirements mentioned in all of these particular conditions. (For illustrations see J. A. M. A., Vol. LVIII, No. 15, pp. 1097, 1098, 1099, 1100).

ACUTE INFLAMMATION OF LONG BONES.

BY ROBERT O. LE CONTE, M.D., MINNEAPOLIS, MINN.

The paper consists of some features developed in the study of 80 cases of acute inflammation of long bones operated upon in the Pennsylvania Hospital. Attention is drawn to the fact that trauma still plays a considerable part in predisposing the disease, while the exciting cause is one of the organisms of suppuration, principally staphylococcus pyogenes aureus. He lays stress on the localization of the starting point of the lesion, whether it be in the cortex, the medullary cavity, the end of the bone, or the epiphysis, for successful treatment depends upon opening up the original focus at the primary operation. According to the treatment these 80 cases received he divides them in five groups, in the first three of which the original focus of the disease is more or less completely removed at the primary operation, and in the last two groups the primary focus was not opened at the first operation. The contrasting of these groups emphasizes clearly the necessity of a prompt operation, with adequate drainage of the primary focus of infection and the removal of all diseased bone at the primary operation, even if that removal entails a more or less complete resection or excision of the shaft. When the condition of the patient warrants it at the primary operation, such radical treatment greatly shortens the time of convalescence, prevents further destruction of bone, lessens the subsequent number of operations, and reduces the mortality.

SURGERY OF THE LONG BONES.

BY JAMES B. MOORE, M.D., MINNEAPOLIS, MINN.

The open treatment of fractures has an established place in surgery, but at present is being overdone. The Lane plate is the best device for fixing fragments through open wounds. The plates requiring removal have usually been very close to the surface. In no instance has the writer known disaster following the use of the plate. The plate cannot be used in compound fractures satisfactorily, because of the lowering of the resisting power of the tissues by the accident. The wound is sometimes healed over a plate after infection. The use of the bone splint taken from the patient's own person is doubtless our best resource in patients who have not good bone producing power. The greatest advance in surgery of the long bones in recent years is in treatment of fracture of the neck of the femur. Since using the two-way pull of Maxwell the writer has been as confident of securing bony union in fracture of the neck of the femur as in the shaft. Fracture of the neck of the femur is quite common in children, and very commonly neglected. Nonunion is the usual result after treatment by the older methods, but even then the case is not hopeless, for the fracture can be successfully treated through open wound. Notwithstanding the fact that osteomyelitis furnishes a large percentage of surgery of the long bones, the disease is very commonly neglected, so that the surgeon is called upon to operate for the relief of the results of the disease rather than for the disease itself. The use of the Moorhof bone wax following the removal of sequestrum is followed by brilliant results when the proper technique is observed.

END RESULT OF FRACTURES OF THE SHAFT OF THE FEMUR.

BY W. L. BOYER, M.D., SOUTH BETHLEHEM, PA.

An examination of 1869 cases of fractures in St. Luke's Hospital shows that 245 cases, or 13%, were fractures of the shaft of the femur.

A study of 760 tabulated cases of fractures of the shaft of the femur shows:—

1. That records of fracture cases are kept very incompletely and that it is quite impossible in the United States to obtain anything like full, accurate and reliable data of a large number of finished cases.

2. The largest number of cases of fracture of the shaft of the femur occurs in men between the ages of twenty (20) and fifty (50) years. Children under ten (10) years of age have the next largest number.

3. Working people furnish the largest number of cases, though data in regard to this point is not kept in the majority of cases.

4. Indirect violence produces by far the largest number of these fractures.

5. The middle third of the bone is most frequently broken, the lower and upper thirds are almost equally involved, of the reported cases.

6. Simple fractures far outnumber the compound and complicated ones.

7. Average shortening before reduction, 1.38 inch.

8. By far the most frequent method of treatment was by some form of Buck's extension.

9. An anesthetic was not used to assist reducing the fractures in the majority of reported cases.

10. The average weight used in extension was 14 lbs. (This is too little weight).

11. Not answered.

12. Average reported shortening of completed cases is ½ inch.

13. Average length of time in bed, 8.2 weeks.

14. Average length of time incapacitated, 2.7 months. (This is probably a mistake).

15. Average length of time crutches, canes or other aids in walking were used, 8 weeks.

16. Limp was present for some time in the large majority of cases.

17. A little less than 1-5 of the reported cases had inversion or eversion of the foot, or tilting of the pelvis from serious axial displacement.

18. A little more than 1-10 of the cases had excessive callus which produced some disturbance.

19. Nearly all the reported measurements taken were from the anterior superior spine of the ilium to the internal malleolus.

20. Disability estimated by

a Endurance
c Swelling
b Pain
} Present in about 1 case in 25 reported
d Interference with joint function

21. Death rate of reported cases, 3.69%. (This is believed to be a mistake). Chief causes of death, a, pneumonia; b, shock and exhaustion; c, delirium tremens.

It seems to the writer that there is no reason from the study of this much larger number of cases to change the form of wording of the conclusions adopted by the Commission of the Pennsylvania State Medical Society in its report of last year and he offers these as his present deductions.

These incomplete reports, and even the comparatively large number of cases which have been tabulated, serve to indicate indubitably that this most important fracture and serious injury, in hospitals at least, does not receive the attention and care of the chief surgeons as a rule. Treatment is usually delegated to the interne staff whose experience and anatomical and mechanical knowledge are wholly inadequate to meet the indications in a great many of the cases, and whose lack of order and thoroughness make the records of the cases such unreliable data that it is very difficult for any one searching for the truth in the various phases of treatment to find what he wishes.

The first recommendation of the writer therefore, would be, and the first deduction from his work is, that teachers of surgery in medical schools, should give far more attention than they have done in the last decade or more to their own investigation of fractures, and to the teaching of this most important branch of surgery to the students who belong to their classes.

Second, while recognizing the fact that x-ray photographs may be most misleading, the writer believes, nevertheless, when taken by competent anatomists, who understand the importance of proper relative position of tube and limb, and the importance of taking more than one view of the fracture, these radiograms will furnish an indication for the proper reduction, and the mechanical appliances for the preservation of proper apposition, and that they will serve as a graphic record of the fracture itself.

These radiographs to be most valuable should be taken before reduction of the fracture, when it has been reduced, and has a fixed dressing, and finally, after union has taken place and the patient is able to be up and about.

In regard to the method of treatment the writer from the study of the cases finds that some form of traction is the method most commonly employed, and that the results after such treatment, in most cases, enables the patient to resume his occupation and function without serious detriment. Properly taken x-ray pictures, however, show absolute apposition and restoration of proper axis of the bone is very seldom accomplished.

Deaths from simple fractures of the femur are 3.69% of the cases; the reports show they occur almost wholly in cases of old age from shock and exhaustion or from pneumonia; in drinkers from delirium tremens; or from some operative interference. It is evident that the open method itself introduces into the treatment of these cases such a very marked element of danger that the writer cannot recommend the method for general use nor recognize it as a routine practice.

In selected cases where it is impracticable to restore the fragments to their proper position, and where mechanical means have failed within a reasonable time to produce proper restitution of the fragments, the open method may be employed, but then only by an experienced surgeon, one who habitually employs most thorough aseptic methods.

The writer is not prepared to recommend any one method of mechanical treatment. As in everything else, the method must be adapted to the case itself, and not the case to the method.

Some form of traction, such as Buck's extension, seems to be the preferable method of treatment. If Bardenheuer's suggestion of transverse traction over the ends of the fragments in order to overcome lateral displacements be added, it will greatly improve the results in many cases. Hamilton's apposition splints placed about the fracture at proper places will serve for this purpose in the majority of cases.

OPERATIVE TREATMENT OF FRACTURES.

BY JOHN B. WALKER, M.D., NEW YORK CITY.

In 109 there were only a few papers on this subject, while in 1912 the literature was full of references to operations. Numerous operations have now been performed by many members of the Association and as their experience has increased they have gradually operated earlier and more often because they have obtained better results. These facts show clearly the great increase in the amount of attention paid to securing better results after fractures. The surgeons have become convinced that the results must be improved. The public, since the advent of x-rays, have become better educated and are demanding shorter and more efficient treatment, a briefer period of disability with better functional results.

As the fractures of the femur are the ones which most frequently demand and finally come to operation, and also as they present the greatest difficulties at operation, the favorable results which can be obtained in these cases should carry corresponding weight in determining which is the best method of treatment in definite selected cases. In this series of 21 cases of fractures of the femur, operation was performed only after the best efforts of conservative treatment had failed. In every case before operation general anesthesia had been em-

ployed to assist the efforts in reduction, also suitable extension had been applied. Nevertheless, in every case there persisted over 2.5 cm. shortening. Axial rotation was present in all cases, together with angulation.

In operating the writer tries to scrupulously carry out every minute detail of Lane's technique for there is no province of surgery in which results depend more upon the mechanical skill and cleanliness of the operator. Under no circumstances whatever do the fingers ever enter the wound. After the strong plate has been most satisfactorily applied by snug screws to the shaft of the femur it would seem as if no motion were possible. If however, moderate strain be applied to the leg, some motion at the fracture can be appreciated. If this be continued the screws will become loosened and the fragments disarranged. For this reason no strain must be permitted. The plate must be considered only of value merely to approximate the fragments and not at all sufficient to hold them. For this purpose the whole reliance must be placed upon the solid external plaster cast, most accurately and carefully applied. If this does not succeed in absolutely imbolizing the fragments, the operation may fail.

There has been no mortality. In only one case was the plate removed and that was in one of the earlier cases when the operator was somewhat apprehensive, but when he cut down to the plate the screws were solid and it would have been unnecessary. Operations performed under the above indicated method have been followed by excellent results. If this is possible in the cases of old, long-standing difficult fractures of the femur, how much more easily and more quickly can it be done in recent cases, and with how much greater safety and surety of securing an earlier and better functional result? It now appears that sufficient evidence has been shown to definitely recommend operations for fractures of the femur in such cases as where reduction is inadequate. Adequate reduction requires that the ends remain in apposition without obvious angulation or axial rotation, and that the shortening be not greater than one-half inch. Further efforts to secure reduction by extension should not be continued after seven days, as it has been frequently demonstrated that where overriding could not be pulled down in that time, no benefit could be gained by longer traction.

DISCUSSION.

DR. CHARLES L. SCUDDER, Boston, in discussing the papers in this symposium, called attention to the fact that in this country, at least, the operative treatment of fractures was being carried out very thoroughly in order to reach a conclusion with regard to its merits, but he did not think the non-operative treatment received its share of attention in our medical schools and among the profession and that it was therefore unfair to compare the results of the two methods. He believed that the ideal toward which all should strive would be that point where a surgeon on seeing a fracture could definitely make up his mind as to which method, the operative or the non-operative, would give the best results, and to proceed accordingly. He approves of the operative treatment in carefully selected cases, but believes many results obtained by it might also be obtained by the ideally carried out non-operative treatment in the ordinary cases.

DR. JOSEPH RANSOHOFF, Cincinnati, emphasized the fact that about 70% of fractures are not treated by surgeons, but by the country practitioner, etc., and that it should be an aim of the Association to put means in such practitioners' hands to facilitate the reduction of fractures. For this purpose he proposed the use of a pair of common ice-tongs, which could be bought in any hardware store for a dollar and a half. These tongs can be driven into the lower end of a fractured femur without the use of an anesthetic, and extension up to forty pounds can be put on, which will usually prove sufficient for reduction. He had overcome the possibility of stiffness of the kneejoint resulting, by applying these tongs with the limb on a double-inclined plane.

DR. JOHN B. ROBERTS, Philadelphia, did not agree with Dr. Murphy in regard to the drainage of joints that a man who put in a drainage and had a resulting ankylosis was to blame for the ankylosis since ankylosis had developed in cases where there had been no drainage. With regard to fractures he saw no reason for so much stress being laid on shortening considering the great assymmetry existing in many uninjured legs. He believed the simplest and least complicated apparatus for reduction was the best. He reported two cases ending fatally after the operative treatment for fracture of the femur, and stated that well tried non-operative means in the great majority of cases would prove efficient, although admitting that under special circumstances the operative treatment may become necessary.

DR. THOMAS W. HUNTINGTON, San Francisco, believed as a rule, in the hands of competent and skilled surgeons, the operative treatment of fractures was safe. With regard to the introduction of foreign bodies in the treatment of compound fractures, he called attention to the fact that before treatment could be instituted in many cases there was an infection of the medullary cavity, and the introduction of such foreign bodies provided an inviting field for the extension of such infection along the medullary cavity with a resulting osteomyelitis and possibly either loss of a limb or the patient's life. He believed in pursuing the policy of allowing compound fractures to take their own course with as little interference as possible after apposition of fragments is obtained, until after the wound is healed and danger of osteomyelitis is passed. He reported one very successful case in which a portion of the fibula was transplanted into a defective tibia.

DR. MAURICE H. RICHARDSON, Boston, laid stress upon a statement made by Dr. Estes to the effect that the operative treatment of fractures should *only* be performed by skilled men under the most favorable circumstances, and stated that he believed this to be the consensus of opinion throughout the Association.

DR. OTTO KILIANI, New Kork City, said that it should be impressed not only upon the profession but also upon the laity that excellent functional results could be obtained without an anatomically perfect alignment of bony structure. He would be extremely interested to hear the history of the patients whose fractures had been plated say ten years after operation, to see how many of these foreign bodies still remained in place.

DR. FRED B. LUND, Boston, stated that in employing the operative method on old fracture cases there was the difficulty to be overcome presented by callus and adhesions, and that the majority of bad results were in such cases. He believed that in carefully selected cases this operative method was applicable to early fractures, particularly those of the long

bones, transverse fractures of the femur, certain oblique fractures of the tibia with much overlapping, fractures of the humerus where the ends do not come together, and fractures of both bones of the forearm, and referred to several extremely good results obtained. He considered that a patient was more comfortable when put in a plaster-of-Paris spica dressing than with a Buck's extension with which the adhesive plaster is so apt to slip. In reference to Dr. Moore's paper in which was mentioned the use of bone wax in the bone cavities resulting after the curetting of osteomyelitis, Dr. Lund said that he obtained most excellent results from lining the cavity with a skin graft.

DR. A. T. BRISTOW, Brooklyn, reported nine cases of fractures of the shaft of the femur operated upon during the last 18 months; each case healed by first intention and obtained an excellent result, and the patients ranged in age from 11 to 60 years. In every instance every conservative means known to the operator was tried before restoring to the more radical procedure, but where it was impossible by the older methods to get reduction, on cutting down on the fragments it was found that there was muscular or fascial tissue interposed between the ends of the fragments.

DR. GEORGE E. ARMSTRONG, Montreal, Canada, suggested a device which should always be tried in compound fractures in order to lock the fragments, and that was to notch the ends so that they would dovetail into each other; he had obtained excellent results by this procedure. He felt the importance of impressing upon students the absolute asepsis which must be obtained in the treatment of fractures by the open method even beyond that necessary in abdominal operations, and that this operative method should not be attempted if it was possible to lock the fragments without it.

DR. LEONARD FREEMAN, Denver, called attention to many points of advantage, in his estimation, in the use of the external bone clamps to the internal bone plate.

DR. CHARLES L. GIBSON, New York City said that he considered it was perfectly proper for Mr. Lane, with his marvellous technique, to operate on fractures, but that only one man in a thousand was so qualified, and therefore he endorsed the opinion that such work should be undertaken only by skilled surgeons.

DR. G. G. DAVIS, Philadelphia, said that not enough attention was paid to the methods of lateral traction or abduction in the reduction of fractures of the femur, and too much attention was given to Buck's extension, he having arrived at this opinion after seeing a large number of cases of ununited fractures in which the latter method had been employed.

DR. RICHARD H. HARTE, Philadelphia, gave as his opinion that many of the poor results obtained in simple fractures treated by the conservative methods today were due to the fact that the setting and reduction of these fractures in the large hospitals are as a rule relegated to the hospital intern, whose experience is not sufficient to warrant such responsibility being placed upon him. The attention of the chief, all too frequently, is only directed to fracture cases when they begin to do badly. He deplored the scant attention given at the present day in the medical schools to the teaching, both didactic and clinical, of this most important subject.

DR. FRANCIS J. SHEPHERD in speaking of the merits of the x-ray, also mentioned the fact that the laity at present considered it necessary to obtain, as had been said, almost a cabinet-maker's apposition of fragments, and that since the use of the x-ray it had been shown that this seldom was obtained. He considered it important to educate everybody to understand that it was the functional result and not the anatomical result toward which attention should be directed.

DR. JOHN H. GIBBON, Philadelphia, stated that he did not consider anesthesia in the reduction of bad cases as helpful as did many others, and emphasized the fact that one cannot jerk a fracture into place in five minutes, but that in many cases where the traction is allowed to extend over several days and there is a long and steady pull, the reduction may be easily accomplished; this applied particularly to fractures of the upper third of the femur and the surgical neck of the humerus. He also suggested that in fractures of the surgical neck of the humerus treated by abduction and Buck's extension, with the arm at right angles to the chest and the patient in bed, reduction could be safely accomplished.

DR. LEWIS L. MCARTHUR, Chicago, suggested the advisability in bad cases of reducing the fracture, if possible, then taking an x-ray picture and telling the patient that such was the best result to be obtained by mechanical methods, and allowing the patient the privilege of decidin, in case the position was not satisfactory, whether or not he desired operative interference, always explaining to him, however, that a functional result could be obtained without a perfect anatomic result.

THE CONSERVATIVE TREATMENT OF GIANT-CELL SARCOMA, WITH THE STUDY OF BONE TRANSPLANT.

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE, MD.

This study is based upon 52 cases; 26 from the author's own records, the remainder from the literature. It is a question whether the so-called giant-cell sarcoma should be included among sarcomas. He prefers the term "giant-cell tumor." Up to the present time he has been unable to find an authentic case in which this giant-cell tumor produced death by metastasis. The evidence so far demonstrates that amputation and, in many instances, resection in continuity, are unnecessary, or avoidable, surgery. He collected in this paper 11 cases cured by curetting, 1 cured by a second curetting, 3 recurrences after curetting cured by later resection, 1 recurrent curetting well after later amputation; 21 cases free from recurrence after primary resection; 1 recurrence after resection well after amputation; 14 cases subjected to primary amputation remaining well. In practically all of these amputation was avoidable.

Curetting should be the operation of choice in the first instance. It should be performed under an Esmarch bandage, the bone cavity disinfected with pure carbolic acid followed by alcohol; if the resulting cavity is large healing will be accelerated by filling the cavity with a piece of transplanted bone. After resection the wound should also be disinfected as after curetting; if possible the defect should be filled by a piece of bone taken from the shaft of the bone involved by splitting longitudinally the remaining uninvolved bone. If this is not feasible the tibia is the best bone from which to take the transplant.

DISCUSSION.

Dr. William B. Coley, New York City, disagreed with Dr. Bloodgood in the statement that giant-celled sarcoma never produced metastasis and gave a detailed history of a case proving this point, and from this experience concluded that there were certain cases of giant-celled sarcoma in which it was not safe to use conservative treatment and in which even the most radical treatment, amputation of the proximal joint, offered little or no chance of a cure. He briefly referred to 20 cases in which the clinical diagnosis of giant-cell sarcoma was confirmed by the miscroscope; 10 were of periosteal, 10 of central, origin. In 15 of the 20 cases the mixed toxins of erysipelas and bacillus prodigiosus were used before or after operation. In 10 cases amputation was performed. In 9 cases either no operation or a conservative one (curetting) was done; in 3 of the 9 cases the disease was too far advanced for the most radical operation, even a hip-joint amputation, and in one case, a subperiosteal sarcoma of the femur involving the lower third, metastasis had taken place. This patient is now well ten years after the toxin treatment was begun. In addition there had been 2 recent cases of sarcoma of the long bones in the hands of English surgeons in which the limb was saved by the use of the mixed toxins. He reported 21 cases, out of a personal series of 107 cases of sarcoma of the long bones, in which the patient lived and remained well more than three years after operation; he believed the value of the mixed toxins in many of these cases to be quite beyond question.

Dr. Emmet Rixford, San Francisco, referred to a case of giant-cell sarcoma of the lower end of the ulna treated by resection of the lower end of the bone, which had remained well without recurrence for 18 years.

Book Reviews.

A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book Specially Adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; Emeritus Professor in the Maryland College of Pharmacy; and Daniel Base, Ph.D., Professor of Chemistry in the University of Maryland. New (10th) edition, enlarged and thoroughly revised. Octavo, 774 pages, with 82 engravings and 9 colored plates illustrating 64 of the most important chemical tests. Cloth, $3.00, net. Philadelphia and New York: Lea and Febiger. 1912.

It is with pleasure that we note the arrival of the new and tenth edition of this most meritorious work. It is now many years that those medical students who have been unable to take a complete course in inorganic and organic chemistry in the academic halls of the college or university in pursuit of the degrees of A.B. and B.S. have cut their chemical teeth, so to speak, on Simon's manual, and better material for this purpose could not be devised. The instructor at the beginning of the school year looks with dismay upon the task of grounding his utterly untrained students in the principles of chemistry which in most schools must be done within the year. A quiz-compend will not do nor will an abstruse volume on chemistry, and here is where he flies with delight to the volume of Simon as the greatest aid in his difficult task. In clear and concise language the authors impart the simple principles on which physical chemistry is based and which are so essentially important for the understanding of what follows; even if the student has had a good course in phyics at his fitting school this short review fixes the more important principles in mind and separates them from the greater mass of knowledge which has been acquired during the physical course. We may pass over the portion of the book devoted to the metals and analysis; it does not differ markedly from other chemistries. One might remark with justice that more metals are included than are strictly needed for an understanding of the chemistry of medicine, which thereby incumber the mind with an unnecessary burden, but it is much easier for an instructor to omit than insert, and apparently it is the object of the authors to make a well rounded whole of their work. For the portion of the book devoted to quantitative analysis, that part of chemistry so often neglected in the instruction of medical students, but so important, nothing but praise can be said. A lesser amount of space would have made it incomplete and more words would have been superfluous. But it is the section on organic chemistry which we read with the greatest pleasure because, outside of Bunge's effort to popularize organic chemistry for medical men, nothing has seemed more appropriate than the author's exposition of this subject. Accompanying it they have also given directions for simple experiments, illustrating the changes taking place and leading the beginner from the most simple to the more complicated manipulations. As to the wisdom of including the brief summary on physiological chemistry, there may be some question. It is not complete enough to meet the modern demands for the teaching of this subject and there will always be the temptation for instructors to impart and students to acquire this limited portion of biological chemistry and then smile complacently, as if they had exhausted the science. The illustrations are excellent and the colored plates showing the colors of the numerous reactions are admirable as far as they go but in many cases should have the concentration of the solutions used appended or those who try to imitate them in demonstration courses will fall into error without accurate knowledge of the strength of these solutions.

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MODERN SANITATION.

MANY erroneous ideas concerning infectious diseases have been dissipated in the last score of years, since clear-brained men, following the lead of Pasteur and Koch, have developed the twin sciences of bacteriology and prophylaxis. Indeed, there remains now only the fomites theory, that clothing, baggage, money and cargoes of vessels are ordinary or common means of infection. This theory is as old at least as the fourteenth century. It is dying now, but dying hard and is still capable of causing a great deal of inconvenience and occasionless popular hysteria. It has in the past militated against the successful management of outbreaks of infectious disease; and it has encouraged carelessness in determining the origin of these outbreaks, whereas the most careful and exhaustive investigation should be made to secure this information.

We know now that insects and vermin play a most important part as agents of infection in diseases formerly attributed to infected articles; such pests, and not rags and money, are generally the intermediaries in infection. It is the Anopheles mosquito, not bad air, which transmits malaria; the Stegomyia mosquito, and not marsh emanations, is responsible for yellow fever; typhoid, cholera, the dysenteries may be insect-borne. Another serious factor is the "carrier" (who may himself not have contracted the disease at all) of ingestion infections; this fact has been abundantly demonstrated as to typhoid fever and cholera and possibly "carriers" may be proved to be responsible for outbreaks of like infections, the origin of which has been attributed to other causes.

Dr. Alvah H. Doty, in the *North American Review* of November last, has well observed that with the facts we now possess regarding the true means by which infectious diseases are transmitted, every effort should be made to use this knowledge in the better protection of the public health. The health officer is not only enabled to deal with epidemics; he secures also more intelligent co-operation from the public in carrying out needed sanitary reforms.

The dread of contracting disease from the clothing or the money of others has been responsible for many unnecessary and unjust regulations. Well persons in a family where infectious disease exists are either quarantined by law or they remain voluntarily at home for fear they may transmit the disease to others; this often affects seriously those whose income is necessary for the family support. Except in some special instance, and under direction of health officials, such persons were far better out of the house. The patient should be carefully isolated or quarantined, only those in continual charge communicating with him; while the well members of the family should be carefully examined each day to find if they have contracted the disease. Only then are the latter a menace; their clothes are not the infective medium.

An important principle of modern disease prevention is to proceed with as little annoyance to the public as possible. To this end, where large numbers of persons are together, in factories and the like, there should be constant supervision over the former; an epidemic may thus be detected in its incipiency; fewer are then involved, the loss of life is diminished and the general well-being vouchsafed. Rejecting the fomites theory greatly strengthens the defense against infectious disease, since our attention is then turned to the real means by which infection occurs, and to the locality where it has originated. Our sanitarians hope that many infections may be absolutely obliterated from human experience. With the coöperation of the public, but not otherwise, this may be done; therefore each home should to this end constitute a sanitary unit. Great corporations having in their charge large bodies of people should have some form of organization within themselves for the improvement of sanitary methods to insure cleanliness, fresh air, pure

water and proper toilet arrangements. Careful and immediate inspection of premises, destruction of the discharge of the sufferers, cleanliness, fresh air and the like, with effective cooperation on the part of the public—such are the measures desirable in modern sanitation.

REFUSE DISPOSAL IN CITIES.

THE Fried patent, a recent German invention for the disposal of city refuse, is considered the best of its kind now in use in Europe. [1]It has been operated at Fuerth, near Nuremberg (a city of half a million) and also at Barmen; it was last spring adopted for Berlin (now the cleanest city in all Europe); and in the United States is being considered by Pittsburg and by Los Angeles. It seems there is not an American city that should be without some such system; for our communities are often behindhand regarding their refuse disposal facilities.

The Fried system is an incinerating plant which disposes only of ash garbage and street sweepings; the valuable waste materials (rags, paper, bottles, tincans, leather, rubber goods, barrels, boxes, old furniture, etc.) should be a source of great municipal revenue. The city of Fuerth, in adopting this system, decided also to "destroy both the seed and the roots;" and so made compulsory the use of sanitary galvanized sheet iron garbage cans of uniform size, having slide covers with bolt locks. These were sold to householders (who were requested to keep them clean) at a low price by monthly payments of a few cents each if desired. The collecting wagons, electromobiles, carry four detachable receptacles, such having altogether a capacity of about nine cubic yards. The openings have sliding corners. The closed garbage can is inverted upon one of these, and by a slight movement the covers of both can and opening are slipped to one side, when the contents fall into the receptacle. The pulling back of the can replaces both covers. For not a single moment are the contents of the can exposed to the air. Eight openings on each side of the wagon enable several men to work simultaneously, so that it can be filled in less than an hour; when the wagon is driven to the destruction plant an empty wagon arrives to take its place, and the operating crew continues the collection without break or delay. At the destruction plant the receptacles are taken up by an electric crane to the furnace, when a trap door in the bottom is released and the contents fall directly upon the combustion grate. From the time the garbage can is set out for the collector until its contents are burned, the latter have been entirely out of sight and out of the possibility of human or animal contact; nor has there been dust, leakage or offensive odor.

All Fuerth's daily supply of garbage is burned in from twelve to sixteen hours; and the heat thus produced (one kilogram of steam for each kilogram of garbage) is transformed by the steam engines of the power plant into electric energy and turned into the distributing mains of the electric plant. In the furnace the combustion is so managed that there is neither odor, smoke nor dust from the stacks; there is no complaint in the neighborhood of its presence, nor any occasion to complain. The slag of the thoroughly incinerated garbage is a valuable substitute for concrete gravel and is made also into artificial stone, sidewalk surfaces and the like; chemical experts have pronounced this slag entirely sanitary and impervious to heat and water. Since there is plenty of demand for this material, any city can dispose of it at good prices or could use it to economic advantage in its own paving operations.

Fuerth, then, collects and disposes of its garbage and street sweepings by a method wellnigh perfect from beginning to end. Instead of costing anything it yields a revenue. The plant, erected for $25,000, yields now an annual profit of 10 per cent. on the cost of installation; and there seems no reason why every American city should not be just as dustless, odorless, flyless and wholesome as Fuerth or Berlin.

[1] N. Y. *Times*, Dec. 8, 1912. (Copyright 1912, Sturgis I. Walton Co.)

MEDICAL LECTURES FOR THE PUBLIC.

THE course of free lectures on medical topics, offered by the Harvard Medical School, was announced in detail in last week's issue of the JOURNAL.

We wish to congratulate the public, not only on the subjects chosen for the lectures, but also on the speakers, each of whom is specially qualified by training and experience to speak with authority on the matter assigned to him. Among the lecturers are men of maturity and prominence, as well as younger exponents of modern medical work, and we cannot but feel that their discourses will tend to promote the spirit of confidence between the public and the profession of medicine so desirable for all con-

cerned. It is well that the growing interest of the laity in things medical should be met in this way by reliable information offered freely and frankly, for it is by such means, chiefly, that we must hope to develop a universal and more intelligent coöperation in broad questions of public health, which our profession, unaided, can do little to advance.

MEDICAL NOTES.

CHOLERA IN MECCA.—Report from Odessa, Austria, through London, on Dec. 27, states that an epidemic of Asiatic cholera has broken out among the Mohammedan pilgrims now gathered at Mecca, Arabia, to the number of 10,000. During the previous four days, 1714 deaths from the disease are said to have occurred.

IMPRISONMENT OF A DENTIST.—Report from Tangier on Dec. 28, states that Mulay Hafid, former Sultan of Morocco, has recently cast his Spanish dentist, Dr. Cortes, into prison, because the latter demanded a settlement of his account for professional services rendered to the Sultan.

BUBONIC PLAGUE IN MANILA.—Report from Washington, D. C., on Dec. 23, states that 33 cases of bubonic plague have recently occurred at Manila, P. I. The outbreak is said to have been traced to a railroad employee who died of the disease on Oct. 20. The infection has been found among rats in the city, of whom about 20,000 have already been killed.

LONDON DEATH-RATES FOR NOVEMBER.—Statistics recently published show that the death-rate of London for November, 1912, was 15.5 per 1000 living. Among the several districts and boroughs, the highest rate was 26.8 in Shoreditch, one of the populous slums of the east side; and the lowest was 9.8, at Lewisham, a southern suburb.

BOSTON AND NEW ENGLAND.

HARVARD UNIVERSITY CATALOGUE.—The Harvard University Catalogue for 1912-13 has just been issued. The book is slightly larger than its predecessor, the gain in size being due in part to an increase in the number of students—the total being 5,224, as compared with 5,045 in 1911-12. The list of teachers has grown from 707 to 774; there has been a corresponding increase in the number of courses offered, and several new scholarships are announced, raising the total sum available for students in Harvard College from $50,000 in 1911-12 to $64,000 for the present year. The recently organized Graduate Schools of Applied Science are described for the first time in some detail and an announcement is made of a new deparment in the University, the Graduate School of Medicine. The table showing the geographical distribution of students, including 52 states and dependencies and 29 foreign countries, offers interesting evidence of the cosmopolitan character of the University.

ALLIED DENTAL SOCIETIES OF GREATER BOSTON.—A meeting and dinner of the Allied Dental Societies of Greater Boston, held in this city recently under the presidency of Dr. Eugene H. Smith, of the Harvard Dental School, was attended by about 250 members and guests. The principal speakers were Dr. A. C. Fones, of Bridgeport, Conn.; Dr. R. Ottolenqui, of New York; and Dr. N. A. Jenkins, of Dresden, Germany. Dr. Fones read a paper on "The Keystone of the Oral Hygiene Movement," in which he said:

"Over 80 per cent. of dental decay can be prevented by surface treatments at frequent intervals, but the dentists have not the time to do it. We must have help if we expect this great movement of oral hygiene ever to amount to anything, and it will succeed only when the dental nurse or prophylactic assistant is finally established in the dental offices throughout the country. Just as the surgeon needs the help of the medical nurse in preparing the patient for operation, so do we need a woman assistant to clean the surfaces of the teeth, to give us a clean field for examination or operation."

A resolution was adopted by the meeting in favor of the bill, to be presented before the next session of the General Court, for the licensing and registration of dental nurses.

NEW YORK.

DEATH NOT DUE TO STOVAINE.—The coroner's inquest in the case of Patrick Hart,* who died suddenly at the New York Polyclinic Hospital during the recent Surgical Convention in New York City, has been concluded and the report of the autopsy as presented by coroner's physician, Dr. Edgar T. Ray, showed that the patient was suffering from myocarditis, atheroma of the aorta, emphysema of the lungs, the liver large and fatty, chronic interstitial splenitis, chronic gastritis, chronic interstitial gastritis, chronic interstitial nephritis. The degenerative

* The patient referred to in an item on page 780 of the issue of the JOURNAL for Nov. 28, 1912.

changes showed the results of long continued alcoholic excesses. There was no indication of injury from the anesthetic and Dr. William S. Bainbridge was pronounced as perfectly justified in his procedure. The testimony of Dr. Bainbridge showed that he had performed over one thousand (1000) operations with spinal anesthesia and without a death due to the anesthetic.

HOSPITAL FOR RUPTURED AND CRIPPLED.—The new building of the Society for the Relief of the Ruptured and Crippled, which was formally opened on December 16, is one of the finest hospital structures in the city and very complete in its equipment. An unusual feature is the amount of outdoor space provided, as practically every ward and room where patients are cared for opens upon an extensive playground, and a large part of the sixth floor is arranged for outdoor treatment and recreation. The hospital moved to its present location from Lexington Avenue, the property there being desired by the New York Central Railroad in connection with its terminal improvements, and the large price which this commanded provided the means for purchasing the new site and erecting a much larger and more modernly arranged hospital building. This has five stories above the basement, with the exception of a wing at the northwest, which is two stories in height, but so designed that others may be added, making it correspond with the northeast wing. Over a portion of the main structure extends a sixth floor. The whole building is of the most approved fireproof construction, and the handsome exterior is of the Renaissance style of Northern Italy. With the opening of its new quarters the society expects to broaden the scope of its work, and it is hoped to establish a branch hospital in this country.

Current Literature.

MEDICAL RECORD.

DECEMBER 21, 1912.

1. BUSHNELL, G. E. *Marginal Sounds in the Diagnosis of Pulmonary Tuberculosis.*
2. STEINER, W. R. *The Mechanism of the Heart Beat, With a Consideration of Some of Its Functional Disturbances.*
3. *INGALLS, P. H. *Selection of Female Risks in Whom Hysterectomy and Ovariotomy Have Been Performed.*
4. KAKELS, M. S. *Sacral Kidney Simulating Acute Appendicitis.*
5. FOWLER, R. S. *The Post-Operative Treatment of Laparotomy with Complete Wound Closure.*
6. NAUMMACK, C. E. *Mistakes in the Diagnosis of Typhoid Fever.*
7. LONDON, J. *A New Gastroesophagoscope.*

3. Ingalls has made a study of the results of hysterectomy and ovariotomy from a life insurance standpoint. He believes that it is safe to accept women who have had uterus or ovary removed if no malignancy was expected or found and no complication revealed at the time of operation if sufficient time has elapsed—at least two years—to be sure that all nervous and physical disturbances due to the operation have entirely disappeared, and if the applicant is up to the required standard in all other respects. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 21, 1912.

1. FRIDENBERG, P. *The Clinical Measurement of Defects in the Central Visual Field.*
2. ROBINSON, W. J. *A Unique Case of Artificially Induced Sterility.*
3. SOLOMON, M. *What Eugenics Does Not Mean.*
4. MCGUIRE, E. R. *A New Operation for Decompression.*
5. SMITH, P. *Psychoses Occurring in Twins.*
6. BROWN, H. A. *The Monthly Incidence of Certain Diseases.*
7. LOUGHRAN, R. L. *The Radical Mastoid Operation.*
8. DUNCAN, C. H. *Autotherapy.*
9. THATCHER, P. B. AND HACKNEY, E. J. *A New Tourniquet for Intravenous Work.*
10. CHIPMAN, W. W. *The Problems of Obstetrical Practice.*
11. CULLEN, T. S. *Carcinoma of the Uterus.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 21, 1912.

1. BACON, C. S. *Pulmonary Tuberculosis as an Obstetric Complication.*
2. *FRAZIER, C. H. AND MILLS, C. K. *Intradural Root Anastomosis for the Relief of Paralysis of the Bladder and the Application of the Same Method in Other Paralytic Affections.*
3. DUNTON, W. R., JR. *Predementia Praecox.*
4. CORNELL, W. B. *Cyanosis in Dementia Praecox.*
5. FRANK, J. *Medical Education in South America.*
6. NEFF, F. C. *A Series of Infants Fed on a High-Percentage Albumin Milk.*
7. *COOLEY, T. B. *Relation of the Infant Welfare Movement to Pediatrics.*
8. CHAPIN, H. D. *The Properties, Uses and Indications of the Various Carbohydrates Used in Infant-Feeding.*
9. *WILLIAMS, T. A. *The Practical Import of Recent Work on Hysteria.*
10. ROVSING, T. *The Diagnosis of Tuberculosis of the Kidney in Very Early and Very Advanced Cases.*
11. *WHITESIDE, G. S. *The Use of Tuberculin in the Treatment of Surgical Urogenital Tuberculosis.*
12. *FAIRCHILD, D. S. *Decapsulation of the Kidney.*
13. *FUTCHER, T. B. *Recent Advances in Our Knowledge Concerning the Causes of Glycosuria.*
14. HERBST, R. H. *The Surgical Treatment of Chronic Seminal Vesiculitis by Vasostomy (Belfield Operation).*
15. YAWGER, N. S. *Paranoid Type of Insanity with Jacksonian Convulsions. Syphilitic Cerebral Pachymeningitis. The Microscopic Findings.*
16. EMERSON, C. *Glycosuria among the Insane.*
17. JONES, W. W. *Two Cases of Acute Primary Cholecystitis Presenting Unusual Features.*
18. CADWALADER, W. B. *Unilateral Optic Atrophy and Contralateral Hemiplegia Consequent on Occlusion of the Cerebral Vessels.*
19. GRAY, E. A. *Certain Physical Signs in Scoliosis of Lesser Degree.*
20. KENNEDY, J. W. *Plea for Surgical Intervention in All Umbilical Herniae.*
21. KAHN, M. AND ROSENBLOOM, J. *A Report of Some New Chemical Analyses of Urinary Calculi.*

22. BOWLES, F. H. *Coccidioidal Granuloma. Report of the Nineteenth Case in California.*
23. GOULD, G. M. *Acute Reflex Disorders Caused by the Cinematograph.*
24. KARPELES, S. R. *Irritation from Iodine and Mercury on the Skin.*
25. ROSENTHAL, M. *Chancre Developing Four Days After Salvarsan Injection.*
26. SITER, E. H. *Prostatectomy Knife.*

2. Frazier and Mills relate a most interesting case of intradural anastomosis of lower dorsal and sacral nerve roots with decidedly beneficial results. The article appears to open new possibilities in this field.

7. Cooley is rightly enthusiastic over the infant welfare movement in connection with pediatrics and shows in an interesting article how such a movement thoroughly carried out may lead to a great reduction in infant mortality, a better teaching of pediatrics, a more general recognition of this speciality and a tendency to broaden it greatly.

9. Williams' article on hysteria sets forth new and practical points in treatment.

11. Whiteside is a firm believer in the use of tuberculin as an adjunct in the treatment of urogenital tuberculosis, but suggests that success will not always result and that care should be used in dosage.

12. Fairchild gives the varying views of many workers on the value of decapsulation of the kidneys especially for eclampsia but does not form any definite conclusion as to its exact value. Opinions vary greatly; it is not universally condemned but a relatively small number express enthusiasm.

13. Futcher believes it must now be accepted that not only the pancreas but also the adrenals, thyroid, parathyroids and pituitary have a very important influence on carbohydrate metabolism and hence may be causes of diabetes mellitus. There is undoubtedly marked correlation of the internal secretions of the ductless glands. [E. H. R.]

ANNALS OF SURGERY.

SEPTEMBER, 1912.

1. *MCWILLIAMS, C. A. *A Discussion of Bone Transplantation and the Use of a Rib as a Graft.*
2. SCHAFFER, J. P. *An Unusual Sinus Frontalis.*
3. DENANCREDE, C. B. G. *Bilateral Congenital Fistulae of the Lower Lip.*
4. BOOTHBY, W. M. *Note on Intrathoracic Surgery: Divisions and Circular Suture of the Thoracic Aorta.*
5. *BOOTHBY, W. M. *Note on the Transplantation of Fresh Venous Segments.*
6. FRANK, L., AND BALDAUF, L. *The Results of Ligation of One Ureter.*
7. *MCKENTY, F. E. *On Appendix Tumor.*
8. *FOWLER, R. H. *Foreign Body Appendicitis.*
9. GUYOT, J. D. *The Relation of the Ileo-caecal Folds to Appendectomy.*
10. PHEMISTER, D. B. *Fractures of the Greater Tuberosity of the Humerus.*
11. COUES, W. P. *Separation of the Epiphyses of the First Metacarpal Bones.*
12. BALFOUR, D. C. *An Operating Room Mirror.*

1. McWilliams states the views of several authorities in regard to the way in which transplanted bone grows (Ollier, Barth, Axhausen, Macewen, Basch, Kirzen and Petrow, Vorchutz, Tonita and Murphy). He then presents two operations on human beings and a number on animals which are in accord with some of these views but at variance with others. Two months after an autoplastic graft (a section of rib devoid of periosteum but bored with holes so that nourishment might enter the interior of the bone) to repair a defect in a lower jaw after resection, the graft has united solidly at one end and shows "no sign of "any breaking down" seven weeks after inserting an autoplastic graft (similar to former) between transversalis and transversalis fascia to strengthen the repair of an inguinal hernia there has been no irritation and the graft is still demonstrable by x-ray. In animals he has observed in autoplastic grafts devoid of periosteum used to repair bone defects new osteoid tissue growing from the grafts. He believes that the periosteum has nothing to do with the formation of new bone except to guide the spread of osteoblasts from the original bone, thus giving definite form to the repair.

5. Boothby gains speed and accuracy in performing a double suture of a venous segment, as in attempting to transplant kidneys, by placing the stay sutures before division and removal of the segments. The ligated segment is grasped with smooth forceps on its top side near one of the ligatures. A nick is made close to the forceps. A stay suture is passed into the lumen of the vein just behind the forceps and is brought out through the nick. The second and third stay suture are placed and both brought out through the same nick. If the segment is to be inserted into another vein the other end of the segment is treated in similar manner except the stay sutures are placed from within outward. When the stays have been placed the division of the segment is completed.

7. McKenty records two cases of primary carcinoma of the appendix; both women, aged 30 and 26. He does not regard the fibrous tissue seen in such cases as the result of bacterial inflammation but as connective tissue proliferation coincident with the growth of the tumor comparable to the stroma of a scirrhus cancer. The consequent obliteration of the lumen of the appendix (always seen in such cases) may be responsible for the dormant nature of such tumors. Subsequent inflammation may in some instances stimulate their growth. In only one of eight cases which have occurred at the Royal Victoria Hospital in Montreal has there been coincident pulmonary tuberculosis. This is contrary to the view of Letulle and Weinberg.

8. Fowler's article is a thorough consideration of a surgical curiosity, the common domestic pin as a foreign body in the appendix. He records a case of his own and has collected 51 cases from the literature. These he analyses. In 22 cases the pins were encrusted. In 48 cases the appendix was perforated but in the majority there was no reason to ascribe the perforation directly to the presence of the pin. The point had transfixed the appendix in 21 cases and in a few cases the head was surrounded by a concretion and acted as a ball valve. The position of the pin in the appendix, the resultant or associated lesions of the appendix the incidence of peritonitis, appendicular abscess, sinus, bladder fistulae, liver abscess, and herniae are given. [T. W. H.]

OCTOBER 1912.

1. *ROVSING, T. *Tuberculosis of the Kidney.*
2. *CRAMP, W. C. *A Consideration of Gas Bacillus Infection with Special Reference to Treatment.*
3. *COBB, F. *Mediastinal and Pericardial Infections in Relation to Emergency Abdominal Surgery.*
4. WILLIAMS, E. M. *Trans-Duodenal Choledochotomy for Stone in the Ampulla of Vater.*
5. DOWD, C. N. *Acute Phlegmonous Inflammation of the Large Intestine.*
6. *FRAZIER, C. H. *The Recognition and Treatment of Lesions of the Right Iliac Fossa Other Than Appendicitis.*
7. ROSS, G. G. *A Study of Sprain-Fracture as an Essential to the Occurrence of Dislocation.*
8. DAVIS, G. G. *The Treatment of Intracapsular Fractures of the Hip.*
9. ASHHURST, A. P. C. *Treatment of Dislocation of the Head of the Radius Complicated by Fracture of the Ulna.*
10. GERSTER, J. C. A. *On Freeing of Fragments Preliminary to the Operative Reduction of Fracture of the Femur.*

1. Rovsing's communication is based upon a personal experience of 200 cases. He emphasizes the possibility of the absence of albuminuria and the necessity of microscopical and bacteriological examination of patients with pyuria. He has been able by the method of Forsell to demonstrate the tubercle bacillus in the urine of 80.7% of his cases. He points out the fallacy of depending upon segregators or upon cystoscopy without ureteral catheterization. He again calls attention to the possibility of toxic albuminuria of one kidney when the other is diseased with tuberculosis. In cases in which ureteral catheterization is impossible, he advocates double exploratory lumbar incision. This he has practiced in 30 cases without mortality and with the demonstration of unilateral disease in 24. He has given up modern kidney function tests as he has found them misleading both by positive and negative results. "Bladder tuberculosis is frequently cured spontaneously when the place where the tuberculosis originated is removed." After nephrectomy in cases with bladder involvement he waits some time for this possibility, performing cystoscopy every 14 days. If spontaneous healing does not occur, he institutes local bladder treatment with 6% carbolic acid. A cure is certain if the source of infection has been removed and if the disease is confined to the mucous coat of the bladder. As soon as unilateral renal tuberculosis is diagnosed, nephrectomy is indicated He has performed 145 nephrectomies for renal tuberculosis with a mortality of 4.8%; the mortality for the last 131 cases has been 3.8%.

2. Cramp has studied 25 cases of gas bacillus infection from the Bellevue Hospital and all the reported cases in order to draw deductions regarding treatment. The gross mortality is 48%. Of 30 cases involving the extremities, treated conservatively with generous incisions and continuous or frequent irrigations or baths, the mortality was only 10%. Of 9 cases involving the trunk similarly treated, the mortality was only 11.1%. He advocates a smear on the first sign or symptom of infection (frequently pain out of all proportion to the trauma coming on 12-36 hours after injury and soon followed by a sudden rise of temperature); free opening of the wound and irrigation with weak peroxide of hydrogen; generous incisions, if the infection is extensive, to expose the whole field widely to the air; continuous bath or irrigation; and no bandaging which excludes air. Epitomies of the 25 Bellevue cases and a list of 65 references are given.

3. Cobb calls attention to the fact that certain mixed conditions in the mediastinum and pericardium can simulate intraperitoneal emergencies. An acute serous or seropurulent pericarditis, for example, engrafted upon a chronic obliterative mediastinitis, which has already caused some obstruction to the venous circulation of the liver, can give an acute abdominal picture exactly similar to visceral perforation high in the peritoneal cavity. An illustrative case is given in great detail with an autopsy report.

6. Recent analysis of the end results in appendectomy for chronic inflammation show that from 5 to 36% of the cases have not been benefited by the operation. Some of these failures have been due to an unrecognized Jackson's membrane, a Lane's kink, or a caecum mobile. Frazier considers the symptomatology and treatment of these conditions with illustrative personal cases. He recommends that the button-hole incision for chronic appendicitis be discarded. [T. W. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

DECEMBER, 1912.

1. *MEYER, W. *Cancer of the Esophagus from the Standpoint of Inthrathoracic Surgery; A Report of Four Resections. Disinfection.*
2. BUCHANAN, J. J. *Circular Resection and Suture of the Axillary Artery for Transverse Laceration by Fracture-Dislocation of Anatomical Neck of the Humerus.*
3. STUMM, T. W. *Multiple Myeloma.*
4. *DAVIS, E. P. *A Method of Controlling Post-Partum Hemorrhage by Manual Compression of the Abdominal Aorta: Abdominal Section for Placenta Praevia.*
5. STONE, I. S. *Hypernephroma of the Kidney; Report of Three Cases.*
6. RABINOVITZ, M. *Myoma of the Cervix Uteri.*
7. HUFFMAN, O. V. *A Malformation of the Fallopian Tube.*
8. *WALTON, W. J. AND MEDALIA, L. S. *Hemolytic Streptococcus and Puerperal Septicemia; A Bacteriological Study of One Hundred and Three Labor Cases, with Reference to Prognosis, Prophylaxis and Specific Therapy.*
9. *MEDALIA, L. S. AND WALTON, W. J. *Opsonins and Vaccines in Puerperal Sepsis.*
10. SITER, E. H. *Results of Experiments on Kidneys with Especial Reference to Decapsulation and Establishment of Collateral Circulation.*
11. NORRIS, C. C. *Sterility in the Female without Marked Gross Pathology, and the Report of Thirty-five Cases.*

1. Meyer, in spite of four deaths on the table from attempts to remove cancer of the esophagus by the intrathoracic route, is sanguine over the possibilities of this operation and proposes to continue to employ it in suitable cases with the hope of better results in the future.

4. Davis has checked post-partum hemorrhage by pressure of the knuckles backward on the abdominal aorta with the hand inside the uterus.

8 and 9. Walton and Medalia make the following conclusions from their work on the streptococcus in puerperal infections. The streptococcus is the paramount cause of puerperal sepsis. There is probably a virulent and nonvirulent type, the latter often being formed in the vaginae of pregnant and in afebrile post-partum cases. The virulent type may be spoken of as hemolytic and the nonvirulent as nonhemolytic. These two types are not always distinctly separable clinically. Both types were found in the parturient canal before digital examination had been made. Nonhemolytic streptococci are twenty times as prevalent in the secretions of the pregnant as the hemolytic. Hemolysis, however, does not determine the question absolutely of virulence or nonvirulence of the streptococcus. Clinical symptoms alone are not sufficient to establish a diagnosis of puerperal septicemia. Bacteriological examination is also necessary. The finding of the streptococcus, hemolytic or nonhemolytic in febrile or afebrile cases would indicate the necessity of prompt isolation to prevent spread of infection in maternity hospitals. The finding of hemolytic streptococci in the blood is, according to most observers, tantamount to a fatal issue. Hemolytic or nonhemolytic streptococci causing morbidity are not necessarily of exogenous origin. The source may be lack of hygiene. The authors believe that the taking of the opsonic index is too delicate a test for routine work. Vaccine treatment is of value and worthy of further trial. [E. H. R.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOLUME 99. PART 4.

34. *SCHEPELMANN, E. *Oil in Abdominal Surgery.*
35. DENK, W. *Clinical Experiences with Free Fascial Transplantation.*
36. PICHLER, H., AND OBER, E. G. *The Immediate Use of Plates after Resection of the Lower Jaw.*
37. *NOGUCHI, T. *The Distribution of Pathogenic Bacteria in the Skin, with Relation to Skin*

38. SALOMON, D. *Fractures of the Upper End of the Tibia.*
39. KAERGER, E. *The Application of Direct Venous Anesthesia by Means of the Smaller Subcutaneous Veins to Operations on the Hand and Foot.*
40. HAYWARD, E. *Three Hundred and Seventy-five Cases of Intravenous Anesthesia.*
41. EBERLE, D. *Practical Use of Local Anesthesia in the Hospital.*
42. MAGNUS, G. *Extension by the Use of Spikes.*
43. HAIM, E. *Appendicular Peritonitis from the Bacteriological Standpoint.*
44. GLASS, E. *Late Results of Removal of the Meniscus after Injury.*

34. Schepelmann found that the injection of oil and of oil containing camphor into the peritoneal cavity of rabbits had practically no beneficial influence on the course of a peritonitis induced later, save to retard by about 24 hours the fatal result. The addition of 25 per cent. of salimenthol to the oil, however, appears to check slightly the inflammatory process in the peritoneum.

37. Noguchi, in Ohrmori's clinic, studied the distribution of bacteria on the hand. He found that practically all the pathological bacteria were on the surface; that even an hour's scrubbing could not entirely free the sweat-glands and deeper layers of bacteria, but these remaining bacteria were saprophytes. The tips of the fingers and the neighborhood of the nails were the most difficult parts to clean.

[G. G. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 50. DECEMBER 12, 1912.

1. RÉVÉSZ, B. *Psychiatric Care on the Battle-field.*
2. OBERMEYER, F., et al. *Demonstration of Uric Acid in the Blood.*
3. BARDACH, H. *A New Possibility of Ligating Blood-vessels.*
4. FALTA, W., AND ZECHNER, L. *A Case of Gout Treated with Thorium.*
5. RUPPERT, L. *A Primary Endogastric Lymphosarcoma.*
6. PACH, H. *The Royal Budapest Society of Doctors.*

Correspondence.

PARIS LETTER.

ON MEDICAL PROGRESS.

(From Our Special Correspondent.)

Paris, Nov. 29, 1912.

I recently went over to the Odéon Theatre to see Molière's "Malade Imaginaire," which was being given in its original form, with the terminal ceremony of the conferring of the degree of doctor of medicine. The Odéon used to be a house of amusement buried in the remote confines of the Latin quarter, and in which the various classical French plays were represented by young débutants from the Conservatoire before sparse audiences of impecunious students. But a few years ago the well-known actor Antoine was appointed director of this government subventional house; and such has been the life and go that this talented man has been able to infuse into the theatre confided to his care, that at the present time he Odéon stands probably as the most interesting house of entertainment in Paris. Next to it can be placed the Opéra-Comique, which is also managed by a very able man, Albert Carré; the Grand Opéra has, however, descended to such a low level, under its present management, that it is just about fit for the society folk that enliven its representations with their small-talk while the Comédie Française has gone gradually but soundly to sleep under the auspices of the venerable Clarétie, who has presided over its destinies for the last thirty years.

It had been a long time since I had seen the "Malade Imaginaire," and I had never seen it given in its original shape, which makes an altogether different affair out of it. This play, written 250 years ago, is renowned in that it was Molière's last, he having been taken ill during the final degree-conferring scene at its fourth representation, dying an hour later. The Théâtre Français still has in its possession the fauteuil used by Molière during that scene, and in which he was taken ill. But in spite of the play's 250 years I was really struck with what might be termed its perpetual youth; humanity has not changed very much, at any rate from a medical point of view, since the latter part of the 17th century, doctors and patients still acting about in the same manner they then did. The usual elements of practice were there: Doctor Cure-all; the credulous patient, terrified over nothing, obedient when in that state, but disputing the bill when quieted in mind; and the confirmed non-believer. Listen to these sentences taken from the third scene of the third act, in which the credulous brother Argan discusses the medical question with the non-believer, Béralde:

B.: "The best proof of the excellence of your constitution is that you have not succumbed to all the drugs they have made you take."

A.: "Then you don't believe in the art of medicine?"

B.: "No, and I don't feel that the salvation of one's soul depends on believing in it. I look on it as one of the greatest follies of mankind, and I know of no more amusing or ridiculous comedy than that of one man undertaking to heal another. The springs of our machinery are mysteries, about which we understand nothing whatever. Physicians know the names of all diseases in Greek, can define them, and classify them; but when it comes to curing them, they know nothing at all. All the virtue of their art consists in giving you terms for reasons, and promises for facts."

A.: What then must a person do when ill?"

B.: "Nothing. Remain perfectly quiet. Nature of itself, if we give it a chance, gets itself quietly out of the trouble into which it has fallen. It is our anxiety, our impatience, that spoil everything; and nearly everyone dies of their remedies and not of their diseases."

Now I leave it to anyone,—could the question be better put today, two hundred and fifty years subsequently? We are very pleased with our exploits, talk complacently about scientific medicine, smile compassionately at the state of darkness in which even our immediate predecessors moved, and think that on the whole we are pretty fine fellows, in a medical way. Yet there are certain thoughts that at once occur to the mind that ought to make us more circumspect. We attempt to treat the sick with very much the same désinvolture that our confrères of Molière's day did,—although there are organs in the body of whose use our knowledge is so elementary as practically to amount to nothing, while those of which we have discovered, let us say the major functions, have still unquestionably minor ones of which we are wholly ignorant. The entire question of internal secretion is yet in its infancy, was practically unknown only a few years ago; and yet the men who taught us medicine, and for many of whom we entertained and still entertain the highest respect and esteem, went through their entire careers without this knowledge. Yet, a capable physician of mature experience, acquired from practice in one of the great cities of the world, told me a month ago that he considered that the entire future of medicine lay in the skillful administration of organic extracts! What then were our masters,—mere charlatans? Again, a very well-known writer at home has put it on record that in his opinion there are still as many diseases that we have not yet been able to detect as those that we

think we know! If this opinion is true, or only partially true, then all we medical men can do is to humble our heads and admit that we are a sorry crew, to attempt to take care of our fellow-beings under such condition as those I have just gone over. However, I suppose we shall go on stumbling along as best we can, striving slowly, very slowly, after light. That our rate of progression is deliberate is evident to the most obtuse; yet there *is* progress, and it is of one branch in which very distinct advance has been made during the last few years that I wish to speak today.

In no other part of the body has there been done such fundamentally good work during the last ten years as in medical disorders of the kidneys. Up to the commencement of our century the classification of renal complaints was a purely anatomo-pathological one, that was of little practical use to the physician; treatment was pretty much the same for all forms.—a milk diet; or the final period of the different varieties of nephritis was called uremia, or urine in the blood, as I take it. All of this has now been radically changed. The old equation: albumen in the urine = milk diet, when the albumen cannot be shown to have a surgical origin, has been altogether abandoned in favour of a more reasonable conception of the question, to the unspeakable relief of the practitioner, who now feels that he has at least some sort of a foot-hold in the matter, whereas he was formerly pretty badly at sea, and to the inestimable profit of the patient. This radical change began with Widal's researches in connection with chloride retention in nephritis, and has been carried on in the study of urea retention by the same author and by a body of other young French scientists, Castaigne, Achard, Jaral, Ambard, etc.; the matter has as yet only begun to be elucidated, but sufficient work has already been done to clear the way and to afford the practising physician definite lines to follow in dealing with these common and always serious disorders.

The kidney being looked on as a filtering organ it has been observed that it can either filter too freely, allow substances to pass that it ought to retain (albumen, for instance), or not freely enough; in the latter case there is retention, which, so far as is now known, takes one of two chief forms: chloride retention, or urea retention, the term urea being used for the nitrogen substances in general. These two retentions are called chloremia, and uremia, and careful note should be made of the fact that in the new classification uremia means urea-retention, and not the terminal stage of any nephritis, which is now called renal insufficiency.

Experience has shown that the cases are many in which albumen exists in the urine for years without any signs of retention, the kidneys otherwise filtering perfectly satisfactorily. Such patients merely require careful watching, and testing at stated intervals; but wide latitude can be allowed them in the matter of diet, to their great relief and profit. Sooner or later, however, retention of some sort makes its appearance, and then the course to be followed depends on what the retention is. The best defined and most typical form of retention, and at the same time the most amenable to treatment and the one in which the prognosis is most favorable, is chloremia. This is the "wet" form, that manifests itself by edema, either of the superficial cellular tissues, of the virtual cavities of the body, or of the interstitial tissues of the viscera; in the first instance we get localized edema, or anasarca; in the second liquid collections in the peritoneal or pleural cavities; and in the third hidden infiltration of the nobler organs, such as the brain, or lungs. As soon as the kidneys show inaptitude to let chloride of sodium pass through them in the usual manner, and this substance increases beyond its normal proportion in the blood, the latter gets rid of it at once by pouring it out into the most convenient cellular tissues, usually the subcutaneous ones. In these tissues chloride of sodium can only be tolerated if it is at a suitable degree of dilution; it therefore attracts to itself enough serum to attain this dilution-point, and this is the origin of renal edema. The pure chloride-retention case is apt to be an acute one, in which the treatment is self-indicated, the chloride-free diet, and in which the results are often very rapid and satisfactory. Since an acute case can often tolerate a heroic treatment, it is sometimes well to put such patients on mere water for a few days, perhaps with the addition of lactose; but when the edema is considerable, and there are reasons for suspecting that the system is in reality water-logged, it is more advisable to turn to a course of liquid-reduction and to put the patient on a salt-free regimen of solids.

These are, then, two main typical forms of Bright's disease: the albuminous, and the chloremic; we now come to a third, the uremic, or "dry" form, in which, when pure, there is no edema whatever, although in its terminal stage it is apt to be associated wih chloremia. As there are reasons for thinking that this form is not known to the generality of practitioners, and as its importance is very great, particularly as a safe basis for a prognosis, special attention is hereby called to it.

The careful studies carried out by Widal, Castaigne and the French school in this question have shown that, differing in this particular from chloride retention, urea and its congeners, when they begin to find themselves held back at the kidney filter, remain in the circulation, in the spinal fluid, or in the fluid poured out into the pleural pericardial or peritoneal cavities, and that its percentage is the same in these fluids as in the blood serum itself. Now experience has demonstrated that the extreme normal limits of this percentage are 0.15 to 0.50 per litre; anything over that is pathological and denotes urea-retention, of which the prognosis is far more serious than chloride-retention. Thus, it is now recognized that a percentage of from one-half to one gramme of urea per liter denotes a condition that is serious, but one in which the danger may still be remote; between one and two grammes it is not likely that the patient will live much more than a year; while over two grammes means that the patient will succumb in a relatively few months or weeks. Now the estimation of this percentage is a simple matter for any chemist, although a little beyond the ordinary physician. All that is necessary is to abstract about ten grammes of serum, either by wet-cupping venous puncture, tapping of a virtual cavity, or lumbar puncture, and send it to the nearest chemist, by mail if necessary; the rest is a mere question of hours. The reason why uremia is so much more grave than chloremia is that it is more of a chronic than an acute state and when once established shows little tendency toward recovery, and that it is not easily influenced by treatment. The diet is here also self-indicated, and can be summed up in the formula glyco-amylaceous. There is a wide range of substances of this sort, and a suitable diet for a uremic patient is more easily established and more readily followed than in chloremia, where the absence of salt is an obstacle not easy to overcome; but in spite of the advantages of the diet and the facility of diagnosis, uremia, when once definitely made, is always a serious matter, and the patient's relations should be duly warned thht the outlook for the future is bad.

The fourth and last form of Bright's disease is the cardio-vascular one, which may exist by itself as has long been known, so that it does not seem necessary to refer to it in detail. While these four divisions, which now constitute the classification of medical nephritis, have been spoken of in their autonomous forms, in which each one stands by itself independently of the other three, it is of course evident that in clinical medicine they are more usually encountered in combination. But whether from the point of view of diagnosis, prognosis or treatment they afford the practitioner a tangible and rational basis to work on, and enable us to feel that at last some light has been thrown on this field of medicine which previously was conspicuous for its general obscurity. "S."

Miscellany.

APPOINTMENTS.

PENIKESE LEPER HOSPITAL.—*Dr. James A. Honeij*, of Cambridge, Mass., has been appointed assistant physician at the leper colony on Penikese Island.

ROBERT BENT BRIGHAM HOSPITAL.—*Dr. Charles H. Lawrence, Jr.*, has been appointed assistant physician; *Dr. Richard M. Miller*, assistant surgeon; and *Dr. Lloyd T. Brown*, assistant orthopedist.

UNITED STATES IMMIGRATION STATION.—*Dr. Albert J. Nute*, a native of East Boston, has been appointed assistant physician at the United States Immigration Station, Boston.

RECENT DEATHS.

DR. EVERT JAMES BERGEN, of Washington, Warren County, N. J., died from cardiac disease on December 22. He was sixty-six years old, and was graduated from the medical department of New York University in 1877.

THE REV. ALBERT CARRIER BUNN, M.D., late rector of St. Matthew's P. E. Church at Brooklyn Manor, Richmond Hill, Borough of Queens, New York City, died on December 24 at Asheville, N. C. He was born at Cape Vincent, Jefferson County, N. Y., and was educated at Hobart College, Geneva. He was graduated from the medical department of the University of Buffalo in 1867, and for a time practised medicine in New York State, first at Westford and then at Moris, Otsego County. Under appointment of the Protestant Episcopal Board of Missions, he served as a medical missionary from 1874 to 1879 at Wuchang, China, and while there established St. Peter's Hospital and the Elizabeth Bunn Memorial Hospital. He was the first medical missionary in the Yang-tse Valley District, in the interior of China. Returning to New York, Dr. Bunn studied for the Episcopal ministry, and was ordained to the priesthood in 1882.

DR. JAMES MUNROE DALY, who died in Dorchester last week, was born at Salisbury, Vt., on Dec. 23, 1829. He obtained his early education in the schools of that town and of Middlebury and Bristol, Vt. Coming to Boston in 1846, he studied dentistry in the office of Dr. John Sabine. Dr. Daly began the practise of his profession in this city in 1852, and pursued it continuously for sixty years. In 1870 he received his degree from the Boston Dental School. He was an incorporator and lifelong member of the Boston Dental Society. He is survived by his widow, and by two sons, who are both dentists.

DR. AMOS M. JACKSON, who died on Dec. 25 in Fall River, Mass., was born at Lee, Me., in 1840. After graduating from Waterville College in 1861, he enlisted in the Twenty-fourth Maine Volunteer Regiment of Infantry and served with that command throughout the Civil War. When mustered out in 1867 he was brevetted lieutenant-colonel for gallant and meritorious conduct. Subsequently he studied medicine at the Dartmouth Medical School, from which he received the degree of M.D. in 1873. He was mayor of Fall River in 1898-9. He is survived by one son, also a physician.

DR. WILBUR FISK LITCH, who died last week in Ardmere, Pa., was born in Eastham, Pa., in 1840. He was a graduate of the Jefferson Medical School, and served in a medical capacity throughout the Civil War. Subsequently he graduated also from the Pennsylvania College of Dentistry, of which he became dean in 1903. He was the author of numerous works on dental topics.

DR. EDWARD LEROY OATMAN, a prominent New York ophthalmologist, died from cardiac disease on December 26, at his home in Brooklyn. He was a native of Southbury, Conn., and fifty-nine years of age. Dr. Oatman was graduated from Bellevue Hospital Medical College in 1879, and at the time of his death was attending surgeon to the Manhattan Eye, Ear and Throat Hospital and the Brooklyn Eye and Ear Hospital, and consulting ophthalmic surgeon to the Nyack Hospital and St. Mary's Hospital, Waterbury, Conn.

DR. OMER PILLSBURY PORTER, recently president and councilor of the Middlesex North District Medical Society, died at his home in Lowell, Mass., on Dec. 7, 1912, aged 55 years.

DR. WILLIAM HENRY WATSON, who died on Jan. 1 in Utica, N. Y., was born at Providence, R. I., in 1829. He graduated from Brown University in 1852. He was a founder of the New York State Homeopathic Asylum for the Insane, at Middletown, N. Y.; from 1881 to 1904 a regent of the University of the State of New York; and a member of the advisory board on tuberculosis of the New York State Department of Health.

DR. NATHAN G. WARD, of Philadelphia, died last week at Elizabeth, N. J. He graduated in 1893 from Jefferson College Medical School, and was professor of laryngology and rhinology at Temple University. He was a member of the American Medical Association and of the Philadelphia State and County Medical Associations.

DR. JAMES CHARLES MCKENNA, who died of heart disease last week in Boston, received the degree of M.D. from the Harvard Medical School in 1898. He had practised his profession in this city since that time.

BOOKS AND PAMPHLETS RECEIVED.

Tuberculosis and the Schools by Arthur Tracy Cabot. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 28, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	13	5
Chicago	—	—	Waltham	3	1
Philadelphia	—	—	Brookline	7	—
St. Louis	—	—	Chicopee	7	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	1	—
Buffalo	—	—	North Adams	9	3
Pittsburgh	—	—	Northampton	12	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	7	1
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	15	4
Boston	224	57	Westfield	3	1
Worcester	54	6	Peabody	—	—
Fall River	34	13	Melrose	2	1
Lowell	50	18	Woburn	6	1
Cambridge	34	5	Newburyport	3	1
New Bedford	24	9	Gardner	6	—
Lynn	19	5	Marlboro	—	—
Springfield	30	6	Clinton	3	—
Lawrence	—	—	Milford	—	—
Somerville	21	2	Adams	2	1
Holyoke	17	6	Framingham	5	—
Brockton	2	1	Weymouth	—	—
Malden	—	—	Watertown	6	1
Haverhill	18	3	Southbridge	2	2
Salem	8	3	Plymouth	2	1
Newton	14	—	Webster	7	3
Fitchburg	7	2	Methuen	—	—
Taunton	15	3	Wakefield	1	—
Everett	4	2	Arlington	5	—
Quincy	—	—	Greenfield	—	—
Chelsea	15	2	Winthrop	4	—

Address.

ANTITOXIN ADMINISTRATION.*

BY WILLIAM H. PARK, M.D., NEW YORK.

I APPRECIATE very much your invitation to deliver this lecture. Harvard, I believe, has the credit of being the first institution to establish a thoroughly developed course in preventive medicine. The subject,—Antitoxin Administration,—was chosen for this lecture because it has both experimental and clinical points of interest.

The two diseases in which antitoxic serums are used are diphtheria and tetanus. The results obtained in the prevention of both infections have been equally brilliant; but as regards treatment, success has been decided in diphtheria alone. Before taking up the administration of antitoxin we will consider briefly a few statistics concerning diphtheria. With the introduction of antitoxin the number of deaths from diphtheria rapidly diminished, not only in one city, but in all cities. This reduction first was due to the lesser mortality in those attacked by this disease, but later the number of cases began to diminish. The extensive use of antitoxin in immunization undoubtedly was an important factor in this decrease in the number of cases.

I have here before me the chart which Dr. McCollom made in 1911 of diphtheria in New York and Boston. For some reason, the figures for Boston in earlier years given by him are somewhat different from those collected. Before the introduction of antitoxin, the old city of New York in each 100,000 of population had a few more deaths than Boston; but with the introduction of antitoxin, the improvement in New York was for two or three years more rapid than in Boston. In 1900, however, Boston overtook New York and since then has had a smaller mortality from diphtheria.

I think the explanation of these facts is, that New York started earlier to produce antitoxin for free distribution. In the fall of 1904, the New York *Herald* raised a fund of $8000 to provide free antitoxin, and this was turned over to the Department of Health. Thus, we were able to distribute free antitoxin in 1895, earlier than other cities. When Boston provided free antitoxin, New York lost this advantage.

During last year, the lowest mortality of both Boston and New York was attained, Boston having 18, and New York 28, per 100,000. For the first two months of 1912, the mortality in New York has been less than that of last year by 20%, so that if this rate continues, it will be only 22 per 100,000. When you remember that in 1893 and 1894 New York had an average of 150 deaths per 100,000, while last year it was only 28, and that this year if the remaining ten months are like the first two, it will be only 22, you see that there is reason for enthusiasm in our further efforts practically to eradicate this disease.

Let us today consider some of the methods of using antitoxin in the immunization against diphtheria and in the treatment of the disease.

The first experience I had with antitoxin was most illuminating. Dr. Biggs was in Europe when Behring and Roux gave the results of their investigations which demonstrated the value of antitoxin, and he cabled: "Diphtheria antitoxin is a success; begin to produce it," and so we purchased two goats and one horse and began. A few weeks later, Dr. Biggs returned, bringing with him what seemed to be a considerable quantity, but which some of you in Boston would give to a single patient. At the time there was an epidemic of diphtheria in the country branch of the New York Infant Asylum, where there were some 400 children under five years of age. For several weeks we had been trying, by cultures, to separate those infected from those who were not; but in spite of this, the disease spread and several new cases appeared every day. When the antitoxin was bought, I suggested that if they would allow us to immunize every child on one day, we would devote for this purpose about half our supply. The plan was accepted and we gave each child 300 units. No new cases developed for ten days and then only one. We immunized again all who had had access to the child, and there was now no case for three weeks, when one developed. We again immunized those in contact and after this there was not another case.

Last summer in the Insane Asylum on Ward's Island an epidemic started through a cook; she died of diphtheria twelve hours after she was known to have the disease. The infection had already spread, so that in the course of the next four days some forty cases developed. After consultation with the superintendent, Dr. Mabon, we decided to immunize immediately the 3000 people on the Island. This was done, and no other cases developed. These two instances demonstrate the possibilities of immunization. In New York City our medical inspectors immunize two people for each one treated.

It is now the common practice to have the children immunized in any family where diphtheria is found, and frequently the adults also. I am sure, that to the immunization, as much as to the treatment of actual cases, is due the fall in the mortality of New York City; so that, instead of an average of 150 only 28 out of 100,000 persons die. The immunization dose advised by the Health Department is 1000 units. This should be repeated in ten days if danger of infection still exists. The repetition is necessary because of the rapid elimination of antitoxin produced in one species, when put in another species of animal.

This is shown in a series of guinea-pigs, each of which received ten units of horse-produced

* Abstract from the Cutter Lecture on Preventive Medicine, delivered at the Harvard Medical School, March 13, 1912.

antitoxin; after seven days there was less than a half unit left, and at the end of 14 days, less than one-twentieth of a unit. On the other hand, the series of guinea-pigs which received 10 units of guinea-pig-produced antitoxin held the immunity much better. At the end of 14 days the animals still contained one unit.

Another series of animals received 500 units of horse-produced antitoxin, instead of 10, and at the end of 14 days the guinea-pigs contained but one and one-half units. We thus see that a certain percentage of the antitoxin is destroyed daily, and that the larger the amount given, the larger the amount that remains at a specified time; so that although 300 units will protect a child for ten days, it is better to give 1000 units and thus protect it for from two to three weeks. The animals receiving 500 units had an appreciable trace of antitoxin up to three months. Taking into consideration both the cost and the duration of immunity, 1000 units has been selected as a suitable dose. On account of the difference in size this gives a longer average immunity in a child than in an adult.

The greater duration of immunity obtained in a recipient by the injection of antitoxin produced in the same species is one of the strongest proofs that it is actually a cell-product. This is the reason that passive immunity in man is of short duration. It would be otherwise if the serum came from man instead of the horse.

The possibility of producing active immunity has frequently been considered. Some four years ago, Dr. Smith published an article in the *Journal of Experimental Medicine*, suggesting that it might be practical to immunize the child with mixtures of toxin and antitoxin.

A series of guinea-pigs was given one injection of a toxin-antitoxin mixture, in which the animals received 80 per cent. of the amount of the toxin which a unit of antitoxin was capable of neutralizing sufficiently to prevent acute poisoning. Even with this mixture, 27½ per cent. of the animals finally died, and 12½ per cent. more became paralyzed. The active immunity produced developed slowly but lasted even longer than that produced by guinea-pig antitoxin. The difficulty with the practical application of this experiment is, that when we take a guinea-pig, or a child that has no natural antitoxin, we must approach the danger line in the amount of toxin used to obtain immunity, and we would hardly dare to do this in the case of the child. You may have noticed that active immunity has been produced in man by passing tampons of cotton soaked in toxin into the nose. It is, as described, a somewhat wearisome process, and it is desirable to use it only under exceptional circumstances.

One word about the administration of antitoxin internally. You are probably aware that during the first days of life an infant may absorb antitoxins through the bowels, and even in adult life a trace is absorbed. Of interest, therefore, is the fact that the colostrum contains very much more than the milk, and we have found the colostrum of women who have not had diphtheria to be antitoxic. We believe that infancy is protected from most of the common communicable diseases through this absorption from the colostrum during the first days of life, and that more protection is obtained in this way than through the antibodies passing through the membranes before birth.

To prevent tetanus, we give 1500 units instead of 1000, as in diphtheria, because the tetanus spores entering with the dirt or clothing may survive a long time, and it has been found that a certain number of cases of tetanus developed some 12 to 14 days after severe crushed wounds. When there is risk of the infection continuing in the wound we repeat the injection in 15 days. We have a repetition of immunity when we give the second dose, and can keep up the immunity just as long as desired by reinjecting at two-week intervals. The use of preventive doses has given brilliant results.

As to the treatment of diphtheria, the doses, and the method, I have here statements from a number of authorities. Dr. McCollom, who has had great experience in the successful treatment of diphtheria, states that laboratory investigations cannot help to determine the amount of antitoxin required for treatment, but that this must be decided by observation of results in actual cases. We find, however, that clinical observers differ markedly from each other. For instance, as you all know, here in Boston the tendency is, in light cases, to give from 6,000 to 10,000 units, repeating if improvement does not follow; in moderate cases 10,000 units repeated every six or eight hours; in bad cases from 20,000 units to 30,000 units, repeated every six to eight hours, until a total of 200,000 or 300,000, or even 400,000 units have been given. As to the method of injection, we find that the subcutaneous method is the rule, and the size of the individual is disregarded. In Philadelphia Royer states that in the Municipal Hospital it has been found that from one-half to one-third of these amounts suffice. Koplik, in New York, advises a maximum of 20,000 units. In Germany Baginsky gives a maximum of about 6000 units, and Feer of Heidelberg, 10,000. One of the best pediatrists in New York advises that we be guided by the size of the patient as well as by the severity of the case, and other equally good men give just the opposite advice. Hutinel, of Paris, regulates dose by age, and Ker of Edinburgh, by the intensity of the disease. We find, then, that the most experienced men differ widely as to the amount of the dose, and whether it is to be regulated by the extent of the process, the duration of the disease, or the size of the patient. They also differ on the method of inoculation.

I desire to add a few words concerning clinical observations, before taking up the laboratory results. I am going to impose upon you

by quoting from an article which I published in 1899.

"In June, 1899, we began to give alternate patients larger doses than their fellows, and during the months of August and September, 1900, at the Willard Parker Hospital, one-half the diphtheria patients received 1000 units, and the other half 2000 units. The whole amount was given in one dose on admission. The study of this series was very interesting: 93 diphtheria patients received into the wards during these two months had been discharged, or had died up to October 11. Of those receiving 1000 units, 16.6 per cent. died. (Of 7 intubations, 4 patients recovered; of 2 laryngeal cases not requiring intubation, both recovered.) Of those receiving 2000 units, 13.7 per cent. died. (Of 6 patients intubated, 4 recovered; of 4 laryngeal cases not requiring intubation, 4 patients recovered.)

Therefore, so far as the simple mortality figures indicate, we may say that no marked difference was noted between the 1000 and the 2000 units series.

If we examine the fatal cases we find that in the seven cases of the patients receiving 1000 units, there were two in which the outcome was not so good as we confidently expect when the patient is given sufficient antitoxin.

Patient No 1, for instance, admitted August 30, ten years old, had thick membrane on tonsils and uvula, and had lymph nodes of the neck considerably swollen; he was sick two days, the prognosis was given on admission as good; local improvement was very slow, and on the twelfth day the patient died of lesions due to diphtheria toxin.

Of the seven who died, out of the 51 receiving 2000 units, five seemed to be hopeless on admission. The two remaining did not do so well as might have been hoped from the data given on admission.

In summing up the results of the study of these 93 cases, I should say that the local condition in the moderately and markedly severe cases did not clear up so rapidly with 1000 as with 2000 units; and in two or three cases I believe death would have possibly been avoided by larger doses. I believe also that in several of the 2000 units cases, more rapid recovery would have been obtained by larger doses of from 3000 to 10,000 units.

At the hospital we have tried two other experiments worthy of record. In the first, we gave every alternate patient from 2000 to 6000 units, according to the severity of the disease. The other half received just double that amount. No marked difference in the course and final outcome of the two series was noted. In the second experiment, in order to test a new remedy, no antitoxin was given to one-half of the patients for six weeks. The results were so bad in a considerable number of those not receiving antitoxin, that all were put back on the antitoxin treatment. From these experiments and from observation of other cases, in both hospital and private practice, I was led to adopt the following dosage:

Very mild cases,	1,000 to 1,500 units for the first dose
Mod. severe cases,	2,000 to 3,000 units for the first dose
Very severe cases,	4,000 to 5,000 units for the first dose

Laryngeal patients, according to severity, were given 3000 to 5000 units. After 12 years' further experience, I am inclined to at least double these doses, in order to be on the safe side and cause more rapid recovery. The refining of the antitoxin has removed some of the tendency to cause rashes and has lessened the bulk of the dose, so that about the only objection to larger doses is the cost to the patient or to the city.

In New York City we have two hospitals in which diphtheria is treated. At the Willard Parker Hospital during 1911, 1408 patients had 10,000 units or less, and 140 had more than 10,000 units. Of the latter, 72 had 15,000, 58 had 20,000, and 10 had 25,000 units. The mortality, all cases included, was 17 per cent. The year before, 205 patients received over 10,000 units, and of these 112 received 15,000, and 87 were given 20,000. The mortality was 20.9 per cent. It is interesting to remember that in the year in which larger doses were more commonly given, the mortality, instead of being lower, was a little higher. This is undoubtedly purely accidental, but if the results had been reversed, it might have been considered as evidence of the value of the larger doses. In Kingston Avenue Hospital in Brooklyn, the patients given 10,000 units were 104 in number; 15,000, 41; 20,000, 116; 30,000, 116; 40,000, 62. Of the intubated patients only 8 were given 10,000, 9 received 15,000, 90 received 20,000, 7 received 25,000, and 18 were given 40,000. That is, the doses were almost double in the Brooklyn cases and the mortality was 23 per cent., against 17 per cent. in Manhattan. From all the observations one is impressed with the belief that amounts of antitoxin beyond 25,000 units in a child, and 50,000 in an adult, are absolutely unnecessary and useless; and that an initial dose of 10,000 in a child and 20,000 in an adult is probably sufficient for the whole course of the disease.

THE IMPORTANCE OF GIVING ALL THE REQUIRED ANTITOXIN PROMPTLY AND USUALLY IN A SINGLE DOSE.

Consider for a moment what we expect of antitoxin. We count upon the immediate neutralization of the poison that is circulating in the blood stream, and, soon afterwards, of that in the tissue-fluids. We also have reason to believe that in some degree the poison which by absorption has attached itself to the cells may be modified. You may have seen a recent article by Kraus, in which he states that cells that

have taken up toxin will give this up if they are placed in fluid—free of toxin; and that this occurs more freely if the fluid around them is antitoxic. If he is correct, we have reason for believing that we may remove from the cells part of the toxin which has recently been taken up. Our object, therefore, as quickly as possible, is to get enough antitoxin into the blood to neutralize any toxin present there, so that no further toxin is able to pass out to the tissue-cells. We must also press the antitoxin out into the tissue fluids, and here we remember that the protein antitoxin passes through the capillary walls much more slowly than do the water and salts. The blood of the adult has, moreover, much less antitoxin per cubic centimeter than the child which received the same dose.

On the charts one notes the fact of the slow absorption of antitoxin when given by subcutaneous injection, and that a child or an adult gains from a single injection a greater and greater accumulation in the blood during the first three or four days. The disappearance of the swelling after the injection indicates only the absorption of the water, but not the absorption of the antitoxic globulins and their entrance into the blood.

An infant, for instance, received one injection of 10,000 units of antitoxin. At the end of 12 hours the child had but 1½ units in each c.c. of blood; at the end of 24 hours, 2½ units; in 48 hours, 3½ units; and in 72 hours, 4½ units. The amount slowly increased until the end of the fifth day, when it reached its highest point. I think very few of us really appreciate that what we give subcutaneously as a single injection is being absorbed for days, and that the accumulation of antitoxin in the blood reaches its highest point from the second to the fifth day. In some patients, antitoxin formation goes on rapidly excited by the toxin produced in the diseased tissues, to add its amount to that given. In the chart of such a child we notice at first the usual slow absorption, which by the end of a day is but one-half a unit; suddenly, the antitoxin formation begins, and the child has by the end of the fifth day 60 units in each c.c. of blood, and at least 90 per cent. of this is due to its own production. This was the only child tested which made such a tremendous amount of antitoxin; most children produce comparatively little. In none of the children or adults tested does the blood anti-toxin-content reach its maximum until at least 48 hours; and in none does it drop appreciably until the fourth day. The important fact is, that what we give subcutaneously on the first day is rendering the body fluids more and more antitoxic until the third or fourth day.

WEIGHT AS A FACTOR IN INFLUENCING THE SIZE OF THE DOSE.

If we give two children, one of 40 pounds, and one of 80 pounds, a certain amount of antitoxin, the larger child will have approximately one-half as much antitoxin in each c.c. circulating in the blood as has the child of one-half the size. I think there can be no question that it is chiefly the concentration in the blood and not the total amount which measures the effect. We should recognize the fact that size is one of the important factors in deciding the dose of antitoxin.

As children are more susceptible to diphtheria and are in more danger, we must consider this element also, and give them more than their size would seem to warrant.

Of course, the actual cases will not follow exactly the theoretical amounts, but we find that they run fairly close except when the patients produce considerable antitoxin and thus have an excess.

THE ADVANTAGES OF THE SINGLE INJECTION IN ALL CASES, AND OF THE INTRAVENOUS METHOD IN BAD CASES.

These are the two things which I want to emphasize as possibly tending to a better treatment. The giving of larger doses than are necessary does no harm, except the expense to the city or patient; but an insufficient first dose, and in suitable cases the fact of not giving it intravenously, may be a serious mistake.

There is a great advantage in giving all in one injection, instead of in two to four injections. Two goats were used, one receiving 15,000 units subcutaneously in one injection and the other, four doses of 5,000 units each at intervals of about 8 hours. At the end of 18 hours, we have 12 units in each c.c. of the blood in the goat receiving 15,000 units, and have only 3½ units in the one receiving the divided doses, because only the first portion has had any possibility of being absorbed. It is only at the end of the third day that 20,000 units in divided doses equals in effect the single dose of 15,000 units; and during the first day we have had but one-third the effect. My opinion is that we should give in the first dose all that we think is required for the entire disease; and if we find it necessary to give a second dose, we have misjudged the amount necessary. I am certain that much of the good effect believed to be due to the second and the third doses has been due to the fact of the further absorption of the first dose. As already stated, we are practically eliminating at the Willard Parker Hospital in New York, the second dose, and the results seem as good as at Kingston Avenue Hospital, where the same size initial dose is repeated in later doses. We should keep in mind that we give a thousand times as much antitoxin as is required for the amount of toxin in a case. The great excess is for the purpose of pushing it out into the tissue fluids of the diseased parts and wherever toxin may have passed.

Before closing, I wish to speak of the intra-

venous injection, and to urge it not only in cases of malignant diphtheria but in all cases of tetanus. The difference, during the first day, in the amount of antitoxin in the blood when injected intravenously and when injected subcutaneously, is very great. At the end of six hours, one has with a suitable amount by the subcutaneous method two units, and by the intravenous method 20 units in each c.c. As the hours pass, the one diminishes and the other increases; but even at the end of 24 hours you have 12 units against six units. I feel certain that 5000 units given intravenously has as much effect as 20,000 given subcutaneously. Intravenous injections of refined antitoxin have been made by us in nearly 200 cases and have given no bad results. We have given a large number of children and adults other serums, intravenously, in large amounts, and in all our experience we have had only one patient who showed bad symptoms. In little children one must cut down on the vein, but with adults and larger children it is a very simple method. The serum must always be warmed to blood-heat before injecting. I think that in all cases of septic diphtheria one should give a dose intravenously; but in mild and early cases, it is sufficient to give it subcutaneously. Intramuscular injections are absorbed in about one-half of the time required by the subcutaneous ones, when the serum stays in the muscle-substance; but, in practice, it often escapes.

In tetanus, I have frequently seen the life-saving action of the intravenous injection. I believe it is almost criminal negligence not to give an intravenous injection at the first moment possible. Consider a case of tetanus in which, by the symptoms, you know the most important cells of the body are already affected; is it not foolishness to rely on a subcutaneous injection with its slow absorption? I have urged the surgeons in New York to keep antitoxin on hand, and at the very first sign of tetanus to inject intravenously about 20,000 units of antitoxin. If only a smaller amount is available that should be injected immediately and a larger amount later. Time is more important than quantity. In those cases of continuing rigidity, I confess I advise to go on giving smaller injections every 12 hours for several days, but the more I test the blood in these cases, the more doubtful I am as to the value of repeating the injections. At intervals of 24 hours they keep up the strength of antitoxin. I am sure that a large intravenous injection given within a few hours of the onset of symptoms will save a considerable percentage of patients who would otherwise die. The usual practice after first seeing the patient, is to wait 12 hours in order to be certain of the diagnosis, and then to call at the laboratory to get antitoxin; thus from 12 to 18 hours are wasted. We know that many animals treated within a few hours after the injection of tetanus toxin intravenously by large doses of antitoxin are saved and our experience at the bedside has proved the wisdom of large initial doses. Let us, therefore, combine laboratory results with bedside observations.

Original Articles.

THE IMPORTANCE OF VENEREAL DISEASE.*

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

THE subject upon which I have been requested to speak is of far greater importance than is generally attributed to it by the medical profession and I am pleased to have this opportunity to speak about it. In this paper it is my desire to direct attention to the prevalence of venereal disease, especially gonorrhea, to emphasize its social and economic importance and to point out our duty as individuals in handling patients with these diseases.

While I have been requested to speak about the practical side of the care of gonorrheal patients, I cannot refrain at the outset from considering the subject of venereal diseases in general, that we may have a proper perspective in regard to this matter, the importance of which cannot be too strongly impressed upon us.

In the year 1902, at Brussels, there was held the International Congress for the Study and Prevention of Diseases Growing Out of the Social Evil. At this Congress there were men from all the civilized countries who recognized the necessity for acting in regard to the control of venereal diseases, the subject being considered from the moral as well as the medical standpoint. As a result of this Congress there was founded in New York City in 1905 the Society of Sanitary and Moral Prophylaxis. Since then many other branch societies have been established in this country. This society, fathered by Dr. Prince A. Morrow of New York, is a sane body of men who are in a position to get at facts, and is not a body of enthusiastic reformers. It is safe, therefore, to take their findings as a fair statement of the facts. In one of their reports the statement in regard to the prevalence of gonorrhea and syphilis is as follows: "In point of prevalence they vastly overshadow all other infectious diseases, both acute and chronic combined. It is a conservative estimate that fully one-eighth of all human diseases and suffering comes from this source. Moreover, the incidents of these diseases fall most heavily upon the young during the most active and productive period of life. It is a fact worthy of consideration that every year in this country 770,000 males reach the age of early maturity. It may be affirmed that under existing conditions at least 60 per cent., or over 450,000 of these young men will sometime during life become infected

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with venereal disease, if the experience of the past is to be accepted as a criterion of the future. Twenty per cent. of these infections will occur before their 22d year, fifty per cent. before their 25th year, and more than eighty per cent. before they pass their 30th year. These 450,000 infections, be it understood, represents the venereal morbidity incident to the male product of a single year. Each successive group of males who pass the 16th year furnishes its quota of victims, so that the total morbidity from this constantly accumulative growth forms an immense aggregate."

The surgeon-general's report for 1911 shows that in our navy there were 7721 men relieved from duty because of venereal disease. This report also states that 123,367 days of service were lost in consequence of these men being infected with venereal disease. In this list gonorrhea and its complications stand first, there being 5349 cases. There were 1409 cases of chancroid, and syphilis stands third in the list, there being 963 cases. This report states that the total enlisted strength of the navy was 56,721, which means that over 12 per cent. of the total force was infected during that year by venereal diseases. This is very significant when it is known that each man returning from leave is required to report to the surgeon and state whether or not he has had sexual intercourse. If so, prophylactic treatment for gonorrhea, syphilis and chancroids is given. Failure to comply with this rule is a punishable misdemeanor. Moreover, officers escape this rule, which makes the percentage of infected individuals still higher.

In our army, for the year 1910, the last report available, the total venereal ratio per thousand was 138, a little over 13 per cent.

Noeggerath (quoted by Morrow) estimates that out of every 1000 married men in New York, 810 have, or have had, gonorrhea, and a great majority of the wives of these men have been infected. While it is impossible to estimate accurately the percentage of individuals infected with gonorrhea, it remains without question that this disease is the most widespread of all diseases affecting the male population.

Morrow estimates that in the city of New York there are 200,000 syphilitics. Gerrish states that syphilis is one of the most common diseases and estimates its prevalence at about 10 per cent. and states that 80 per cent. of the cases in the acquired form occur between the ages of 19 and 35. Fournier in a recent article mentions a series of 30,000 innocent infections of syphilis.

In 1911 I made an attempt to determine the prevalence of venereal diseases in this community. The task I found to be an impossible one because the charity patients are scattered both in respect to the institutions and in respect to the departments in this institution. At the three large genito-urinary clinics in this city, one at the City Hospital, one at the Boston Dispensary and the third at the Massachusetts General Hospital, certain facts were obtained. In the genitourinary department of these three institutions in the year 1911 there were treated 2947 men for venereal disease. These figures do not in any way represent the number of male patients treated at these institutions for venereal diseases and their consequences, many being treated for syphilis in the skin department, some in the medical departments and others in the eye, ear, nose, throat and nerve departments. In the two hospitals, many were operated upon for conditions which were the result of venereal disease and others have been admitted to the medical side of the hospitals for conditions the origin of which was venereal. At the Boston City Hospital, the number of patients with venereal disease treated in the Gynecological Department was 886. If there was no gonorrhea this department would hardly be needed.

No estimate can be made of those with venereal disease who consult a physician privately, I find in the daily newspapers of Boston nine different advertisements which promise cure for venereal diseases. I am informed on good authority that these offices do a very large business, one office making over $50,000 and another over $35,000 yearly for many years. From this it may be seen that a large number of venereal patients pass through their hands. Naturally, we can obtain no data from this source. The fact that these advertisements guarantee to cure must play an important part in the propagation of venereal disease by disseminating a false sense of security.

It is the writer's belief that the interest in syphilis which has been stimulated by the new sero-reaction for the detection of the disease and the treatment of the disease by Ehrich's new drug is going to show a considerably higher percentage of syphilitic infections than before.

One cannot at this time refrain from referring to some of the fundamental facts which are responsible for the prevalence of venereal diseases. At the outset, public opinion based upon traditional usage and false modesty persists in regarding venereal disease as shameful and of immoral origin. Further, it avoids disseminating knowledge respecting their dangers. Facts must be admitted and it is folly to deny the existence of conditions simply because we object to them.

The facts should be known at least to the medical profession, which is not the case. Our instruction in venereal disease in most medical schools is insufficient,—moreover genito-urinary surgeons prefer to discuss less common diseases for various reasons, and therefore the general medical profession is not properly instructed in the commonest disease affecting our population.

Another most important feature of neglect is with our health departments. All other infectious and contagious diseases have received their attention and the results stand as a fitting tribute to their endeavors.

More complex and of greater importance is

the control of venereal disease. The infectious and contagious diseases which are now handled by health departments are diseases which all attempt to avoid. Not so with venereal diseases because they are associated with obedience to one of the strongest laws of Nature. I cannot help but feel, as I stated in a paper read before The Massachusetts Boards of Health Association that the responsibility for the control of these contagious diseases rightly belongs to our health departments and that they should take active measures to correct these evils and not continue to evade this important matter because it is a tremendous undertaking.

The effect of this prevalence of venereal disease is seen constantly by the medical profession. These diseases not only injure the individual physically, but mentally and morally. It may make its victim sterile. It is carried into the family, producing disease in the wife and may result in an impairment of the production of the offspring by sterility, or miscarriage. The children born of parents with venereal disease are often defective. These diseases may result in permanent invalidism of the child from the date of birth, or an inherited taint may be transmitted by it to future generations. Those with venereal disease are a menace to the health of the community because they spread the disease to the innocent and because a certain percentage must be supported by the state. That serious consequences result from infections of gonorrhea and syphilis, against which infections no organized precautions are taken, does not need to be exaggerated to emphasize the important rôle which these diseases play in the welfare of the individual and the community.

The report of the American Society of Sanitary and Moral Prophylaxis states that the effect of these diseases introduced into marriage are not measured alone by the danger to the life and health of the mother, but are still further manifest in the danger to the offspring. Fully 80 per cent. of the ophthalmia which blots out the eyes of babies, and 20 per cent. to 25 per cent. of all blindness is caused by gonococcus infection. Syphilis is the only disease which is transmitted to the offspring in full virulence. Its effect upon the product of conception is simply murderous. Sixty to 80 per cent. of all infected children die before being borne or come into the world with the mark of death upon them. Those that finally survive—one in four or five—are the subject of degenerated changes and organic defects which may be transmitted to a third degeneration.

Gonorrhea is seldom mentioned as a cause of death but while the mortality from this disease, *per se* is practically *nil*, the number of deaths indirectly from this cause is large. The extension of the disease to the seminal tract in the male, and to the genital organs of the female, and the ultimate migrations of the infecting organism to the bladder and possibly the kidneys, to the synovial joints, and the brain and heart, all may contribute indirectly, and in some cases directly to death. It is stated by Valentine that 80 per cent. of the women who die from diseases of the reproductive organs are killed by gonorrhea.

What is true of gonorrhea is also true of syphilis. This disease likewise kills indirectly by involving other structures. The lowered vitality, in consequence of a chronic disease such as syphilis, is responsible for a susceptibility toward other diseases which may result fatally.

The worst effects of gonorrhea and syphilis manifest themselves chiefly in producing lesions which result in physical impairment. Blindness and involvement of joints are a frequent sequence of gonorrhea, and paralysis and insanity commonly follow syphilis. Gerrish states that of all the blindness in this country 15 per cent. is traceable directly to gonorrhea and that from one-half to two-thirds of the cases of ophthalmia neonatorum are of gonorrheal origin. Valentine states that 80 per cent. of the blind in the charitable institutions, have lost their sight by gonorrheal infections during birth. The American Society of Sanitary and Moral Prophylaxis states that 80 per cent. of blindness in children is due to gonorrhea and 20 to 25 per cent. of all blindness is caused by this disease.

Sever states gonorrhea is followed in over 10 per cent. of the cases by joint involvement usually monarticular in one-half of all cases, which may come on during any stage of the disease even when it has been latent for a long period of time. Foci existing in the prostate, seminal vesicles, uterus, tube and ovaries may light up at any time and cause joint symptoms.

In the second annual report of the Committee on Prophylaxis of Venereal Disease it is stated that in this country gonorrhea is responsible for 66 2-3 per cent. of sterile marriages, the condition of the male organ being responsible for one-third and those of the female for two-thirds. It is believed that more than 40 per cent. of the barrenness and childless marriages is due to gonorrhea produced by a stenosis somewhere in the male seminal apparatus. Benzla, who investigated the number of officers in the German Army who had had gonorrhea, found that 10½ per cent. of those who had the disease without epididymitis were childless, while of those who had unilateral epididymitis, 23.4 per cent. were childless, and of those with bilateral epididymitis 41.7 per cent. were childless. Leigeois found in 28 patients with double epididymitis that there was a complete absence of spermatozoa in 21. Neisser states that 50 per cent. of all involuntary childless marriages are due to gonorrhea of the female genital organs. Kehran found in 96 sterile marriages that 45 per cent. were due to gonorrheal infections of the female generative organs and 30 per cent. to absence of spermatozoa in the husband. Hagner states that he has found in unfruitful marriages that the husband is the sterile member in about one case in six.

Brothers states that he examined 72 husbands of childless women and found 50 who were responsible for the sterility. Chrolak places the percentage of sterility due to the effects of gonorrhea in the female at 40 per cent., Kammerer at 83 per cent., and Gruenwald at 53 per cent. Lier and Asch found 221 women out of 227 sterile from the same cause.

Abortion, the result of venereal disease, is common and exerts an important influence in connection with the depopulation. Morrow, in this connection, states that 42 per cent. of abortions and miscarriages are to be ascribed to syphilis. He states that the statistics of European observers show from this cause a mortality of 60 to 61 per cent. in private practice and 84 to 86 per cent. in public hospitals. Fournier mentions 90 women of the better class who have been infected with syphilis by their husbands, becoming pregnant in the first year of married life. Of these 50 per cent. miscarried, 38 gave birth to children who died soon after, and only two had children who survived. Williams attributes 73 per cent. of all abortions to be due to inflammations of the cervix and uterus. Noeggerath found that 19 women out of 53 who became pregnant in the course of gonorrheal infections, aborted. Fiuhinsholz notes 101 pregnancies occurring in women affected with gonorrhea, out of which there were 23 abortions and seven cases of premature labor. I have tried to obtain information relative to this from the maternity hospitals in this community but without satisfactory results.

That syphilis is responsible for a large percentage of the cases of hemiplegia, general paralysis and tabes, is generally recognized. Many authorities believe that general paralysis and tabes have no other etiological factor and their belief is substantiated by finding a positive Wassermann or Noguchi reaction in the blood of cerebrospinal fluid of all cases.

To determine the amount of insanity due to syphilis and the cost to this state of maintaining such cases, I made an investigation of the conditions in the various insane hospitals in the year 1909 and found that the total cost to the state per day of maintaining the inmates who are in these state institutions for unquestionable syphilis is $300.24, the total cost to the state during the year is $109,587.60. This percentage of syphilitic patients does not represent the number of inmates who are at these institutions for a remote effect of syphilis. The percentage of positively syphilitic patients was 3.75 per cent., while those with the remote effects of syphilis, such as general paralysis, tabes, etc., brought the percentage up to over 10 per cent., so that if we include these cases the cost to the state per year is in the vicinity of $300,000, and as a matter of fact is probably higher. Time prevents me from mentioning more than a few facts in connection with the economic importance of venereal disease. It is undoubtedly true that these diseases are constantly producing invalids who must be supported by the state. Children are being born of venereal parents, a certain percentage of whom are defective and must be cared for. The money for maintenance of institutions for these unfortunate individuals is raised for the most part by taxation. In an attempt to cure we are all contributing money which could be better invested in prevention. It is impossible to figure the cost to the state and to the cities in this state for the care of hospital, ambulatory, and house cases which apply to the numerous charities for treatment because of venereal infection. In syphilis and gonorrhea we have two of the most universal diseases, a proportion of one syphilitic to 100 of gonorrhea. These two diseases are exerting an important influence in the depopulation of the human race. A mortality of from 60 to 86 per cent. takes place among the offspring of syphilitics; sterile marriages result in about 50 per cent. of the cases where either parent has been affected with gonorrhea, are also in frequent abortions, which are facts of importance to all interested in genetics. These diseases result in chronic invalidism which impose a tax upon the community. The distressing feature from an economic standpoint is that millions of dollars are spent yearly in this country for the care of venereal patients and almost nothing spent in its prevention.

In view of the lack of combined effort to control the spread of venereal disease it becomes more an individual moral duty to make ourselves proficient in the recognition and care of venereal patients.

The general subject is so large that the following practical consideration will be confined to gonorrhea alone. What we desire to know is whether or not gonorrhea is curable; the means we have of deciding this matter; and what our attitude should be in regard to allowing patients who have been infected with the disease to marry.

It is not generally agreed as to what constitutes a cure of gonorrhea. The medical man who has little interest in the disease often dismisses his patients as cured with the disappearance of the discharge, and sometimes even before the discharge disappears entirely, assuming the appearance of a clear urine containing a few shreds sufficient reason for doing so. On the other hand, we have a group of men who assert that gonorrhea is a hopelessly incurable disease. Here then is a great divergence of opinion upon a most important matter. The conclusions which I personally hold in regard to this subject have grown out of a deep sense of appreciation of the distress which comes from error; and the great responsibility which we have in our decision of this question.

There is one fundamental rule. No case of gonorrhea is cured until the genito-urinary tract is freed of the last gonococcus. So long as a living organism remains anywhere in the tract, the patient is in danger of an outbreak of

the disease. There are cases of gonorrhea which get well in a remarkably short period of time with or without treatment. On the other hand there are patients with gonorrhea, well treated, who never get rid of the disease entirely. The explanation of this diverse course of the disease is, I believe, due chiefly to the structures involved by the organism, yet there is much regarding the bacterial fauna of the urethra which we do not as yet understand,—moreover, recent investigations have shown that there are several different strains of the gonococcus in relation to virulence and the recent investigations in regard to immunity have shown a varying degree of individual resistance, which facts may contribute to our understanding of the varying course of the disease.

The infections involving only the mucous membrane of the anterior urethra has the most favorable outcome. When, however, the infection penetrates the lacuna magna, the glands of Letré, and extends back into the deep urethra, involving Cowper's gland and its ducts, the prostate, uterus masculinus, the ejaculatory ducts and ampulla of the vas, the seminal vesicles, the vas deferens or the epididymis, or when the disease extends into the urinary apparatus, as it occasionally does, involving the bladder, ureters and the kidneys, then the prognosis regarding a cure is less favorable and in some instances absolutely bad.

The situation is briefly this: A patient who applies for treatment for an anterior urethral infection of short standing, who responds to treatment and who in due course of time has no discharge and a clear urine with a few shreds, and who after a few months of normal living has no return of symptoms, is usually cured. These shreds, however, may arise from follicles or patches in the anterior urethra which harbor the gonococcus. If one employs due care, these shreds should be examined at least five different times for the organism, both by teasing them apart, staining and examining with the microscope and also by cultures. I personally never discharge these anterior cases with shreds without their being examined at least five times, and also examining the anterior urethra with the endoscope. If infected follicles or patches remain in the urethra they are treated until they entirely disappear. Also these anterior cases are never discharged as cured even when the urine is clear, with or without shreds, until the prostatic secretion is examined for pathological elements or organisms for at least three times. In many instances, when the symptoms and signs are referable only to the anterior urethra we have found the gonococcus and the products of inflammation in the prostatic secretion many times, and we will not discharge these cases as cured until there are at least three negative findings at intervals of a fortnight apart. These cases, however, are the simple ones.

The difficult cases are those in which the acute symptoms disappear, but there remains a drop of purulent or sero-purulent discharge at the meatus in the morning or a sealing together of the lips retaining some inflammatory product in the urethra, or the slight muco-purulent moisture which persists at all times. These cases, often of months and possibly of years' duration, are the cases which tax the patient and the physician who has not the knowledge or facilities to determine the location of the pathological lesion, and who is therefore unable to institute appropriate treatment. Even in the hands of those most skilled, these cases improve slowly as a rule.

The important point in connection with these cases is to locate the lesions from which the secretion arises. Briefly stated, the procedure is as follows: A microscopic examination is made of the secretion from the meatus, which examination may reveal organisms and cells which will give some clue to its origin. The gross and microscopic examination of the urine passed into several glasses may form the character of its transparency and the type of shreds and microscopic findings be of help in this connection. The physical examination of the urinary tract will often disclose important information. Strictures or deep infiltrated follicles may be felt by palpation of the urethra. A slightly enlarged Cowper's gland harboring a chronic inflammation may also be detected by this means. Palpation of the testicle, epididymitis and cord is of importance. The prostate and seminal vesicles should be palpated with reference to equality of size, shape, surface, consistency, and tenderness. The secretion from these two organs should be collected in a clean glass dish held at the meatus during the massage of the prostate and vesicles and examined microscopically for the products of inflammation and organisms. Here I would like to speak of a great fallacy common in the profession. Their knowledge of the condition of the prostate usually depends solely upon palpation of the organs. The prostate like the kidney is a secretory organ, and we should no more pass an opinion upon the condition of the prostate simply by palpation than we should by palpation of the kidneys. The prostate secretion should be examined microscopically as carefully as is the urine before any knowledge of the condition of the gland can be positive. The massage of the prostate and vesicles should always be done with bladder containing urine; the vesicles will contain material from these structures which should be subjected to centrifugalization and microscopic examination. This material will often contain organisms when all other secretions have been negative.

The anterior urethra should be endoscoped to determine the presence or absence of lesions. According to the findings of the already mentioned procedures it may or may not be necessary to endoscope the deep urethra to learn the condition of the mucous membrane, the pros-

tatic ducts, the uterus masculinus and the verumontanum. It is realized that these procedures are employed only by experts, but I desire to point out the fact that it is necessary to learn the location of the lesion in order to treat the patient properly and also to emphasize the uselessness of continuing to treat these cases by anterior injections, which is so commonly done. There is one helpful thing which I can state in connection with these patients with a small amount of persistent discharge. The greatest number have the lesion located in the follicles of the prostate, and if by the theory of chance the only lesions are here located, benefit will be obtained by regular and properly performed massage of the prostate and injecting urinary antiseptics into the deep urethra. If we are to proceed on this theory of chance, as many must do, it is of great importance to render the anterior urethra clean by injection of an antiseptic solution, such as permanganate, before passing the prostatic syringe into the deep urethra, for if lesions exist in the anterior urethra the deeper structures may be infected by carrying the product of inflammation backward by the prostatic syringe.

Time prevents me from more than mentioning a few facts in connection with gonorrheal infection in the female. As all know, the gonorrheal process in the female usually starts in the urethra, where it is often controlled by treatment without further extension, yet in an investigation of this matter which we have carried on in the past year, we have found that in 84 patients with symptons or reasons to believe that they had been infected with gonorrhea the organism recovered in the urethra in 35. We found also, however, that in these 35 positive urethral cases the organism was present in the vagina and cervix as well. Of the remaining number not positive in the urethra, there were two positive in the vagina and cervix.

When the infection reaches the cervix, the organism may be arrested in the cervical glands giving rise to endo-cervicitis, the organism frequently not being recoverable or demonstrable in smears, yet the individual occasionally infecting others. When the extension of the process reaches the uterus and Fallopian tubes, exacerbations of acute symptoms, often of serious consequences, are common, and the patient cannot be free from the disease except by surgical interference.

As a practical matter, I would suggest that in examining the females, the smear be taken from the urethra, the patient not having passed water for at least an hour, or longer; that smears be taken from the vagina, and from the cervix by means of introducing a platinum loop of short distance into the canal.

The subject of treatment is so extensive that it is impossible to more than make passing hints as we consider the matter of whether or not gonorrhea is curable, which is the subject now under consideration. Briefly stated, the cases of simple anterior gonorrhea are curable. When the prostate, seminal vesicles and other adjacent deep structures are involved the cure may be obtained by diligent and expert treatment. In some instances, however, a cure can never be brought about. When these deeper structures are once infected, recurrences of the symptoms with the organisms are not uncommon, and we have records of such patients who have had recurrences after a period of many years of quiescence. In one patient we have demonstrated the gonococcus in the epididymus following an infection eight years previous. This patient had repeated recurrent attacks of epididymitis for which epididymotomy was performed, at which time the organism was recovered. Hagner, who introduced this operative procedure, has demonstrated the gonococcus in the epididymus many times, often after an infection of years' standing.

It becomes necessary now to decide what we are to do to determine whether or not the individual male patient is free from the disease or not. Our procedure is as follows. Examination of any secretion at the meatus. The prostate and seminal vesicles are examined by rectal palpation and massage is performed with a full bladder. If the patient has no urine in the bladder it is filled with sterile water or salt solution. The material obtained from the prostate and vesicles is subjected to microscopic examination for the product of inflammation and the gonococcus. The fluid in the bladder is then passed and collected and will contain bits of material not expressed from the meatus by massage. This fluid is centrifugalized and examined both with and without staining. Before the patient can be considered cured, the examination must be negative at intervals of a fortnight for five successive examinations, the patient meanwhile leading his customary life; drinking alcoholic liquors, if it is his custom or intention to do so later, and if he contemplates marriage, it is suggested that he may have sexual intercourse with a condom. In other words, he is instructed to lead the sort of life that he desires to lead in the future. If, after five consecutive fortnightly examinations the findings are negative, he is instructed to report for another test in one month. I feel that by this degree of care we have done all that it is possible to do in deciding this matter, and even then the responsibility of the future must be borne by the patient, with the statement that we have done all that we can do to decide the matter; that the evidence is in favor of a cure but that a recurrence will never take place cannot be promised.

I find that the great majority of patients who have had any inflammation of the genito-urinary tract usually carry shreds in the urine for many years and if these shreds contain no organisms, as previously mentioned, they may be disregarded. Yet in discharging a patient with

shreds, it is always impressed upon him that he should pass his water before intercourse and that his wife should use an antiseptic douche immediately following a sexual act. It is also suggested, especially if a patient has had no sexual intercourse during the period of tests, that he wear a condom for six months after massage and then return for another examination. The wearing of a condom in any questionable case is the safest procedure, for if recurrences are to take place no harm will have been done. There is a test upon which much investigation is now going on known as the "complement-fixation test" for the diagnosis of gonococcic infection. This test consists in the examination of serum of patients who have been infected with the disease, and promises much in the decision of whether or not chronic discharges from the urinary tract are due to the gonococcus or other causes. A positive reaction of this test is regarded by the laboratory investigator as an indication of living gonococci somewhere in the body. Considering, however, the high percentage of positive results obtained in clinically cured cases after many years' freedom of symptoms, the results at present can hardly be taken as a means of making a positive decision in regard to marriage. This work may, however, as time goes on, prove of much value in this important matter.

In closing, I hope that I have impressed the facts that venereal diseases are extremely prevalent; that the attempts to control it are neglected; that we have therefore a certain moral duty in connection with it; and that we should use our influence wherever possible to have our Boards of Health aid us in deciding the matter of cure by a willingness to make bacteriological reports of secretions, if in no other way.

Society of American Bacteriologists.—The meeting held in New York, December 31, 1912, and January 1 and 2, 1913, was one of the most successful the Society has ever had, both in general interest, as evidenced by the large attendance at each session, and in the importance of the papers presented. The following officers were elected: President, Prof. C. E. A. Winslow, American Musuem of Natural History, New York City; Vice-President, Prof. Charles E. Marshall, Massachusetts Agricultural College, Amherst, Massachusetts; Secretary Treasurer, Dr. A. Parker Hitchens, Glenolden, Pennsylvania; Council, W. J. MacNeal, L. F. Rettger, D. H. Bergey, H. A. Harding; Delegate to Council of American Association for the Advancement of Science, Prof. S. E. Prescott.

THE RELATION OF ACCIDENT AND INJURY TO PULMONARY TUBERCULOSIS FROM A MEDICO-LEGAL POINT OF VIEW.

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and

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One of the commonest questions that our courts have to decide is that based on personal injuries and their effects, immediate or remote. The remote effects may be directly connected with the injury itself, such as nerve paralysis following a wound, or they may be due to the development of some other disease or pathological condition which might, and often does occur, quite independent of any preceding injury, and which may, or may not have arisen because of the preceding injury or its debilitating effects. Tuberculosis is one of the diseases which often occurs in this way. While it is well known that tuberculous infection is the rule rather than otherwise, it is equally well known that it may strike down a person apparently in the best of health. In the majority of cases, however, some cause which makes for a lowered bodily resistance can be found, be this an inherited weak constitution, poor living conditions, a dangerous trade, or some previous illness or accident. One often sees examples of this reported after the autumn football season in the daily papers, according to which some player is said to have developed consumption as a result of injuries received on the football field. More and more often, suits are brought to court in which the question must be decided as to whether pulmonary tuberculosis, developing after some injury, was a direct result of this injury or not. In view of the frequency of questions of this nature, we have ventured to discuss this subject, illustrating it with cases in some of which one of us (J. B. H.) has been directly connected.

The superintendent of the North Reading Sanatorium, Dr. Carl C. MacCorison, in looking over the histories of patients at that institution, approximately 175, found 6, in whose own minds at least, a previous injury had led to the subsequent lung affection. These cases are in brief:

Case 1. F. C. This patient was examined at the Massachusetts General Hospital in June, 1910, as a matter of routine, and was told that his lungs were in perfect condition. He was in good health at the time and continued so until February 13, 1911, when, in a fight, he was hit on the chest, fell forward and was unconscious from the blow and the fall. A week later glands in the neck swelled rapidly, and in March, 1911, pulmonary tuberculosis was found in his lungs.

In this case there seems no reason to doubt that the pulmonary and glandular tuberculosis developed as a result of this patient's injury.

CASE 2. A. C. This patient, now 29 years old, in the spring of 1893, when ten years of age, fell off a wagon and broke his left shoulder blade and collar bone. The bones did not knit well, and a second operation was necessary. He was confined to bed for three months and could do no work for one year. In 1899, at the age of 16, he was sick all spring and summer with a suspicious illness and was fed on eggs, milk, etc., but the doctor did not call this tuberculosis until two years ago.

In this instance the time between the injury and the development of tuberculosis seems far too long and the chain of evidence too incomplete to justify the conclusion that the consumption resulted from the previous injury.

CASE 3. E. S. This patient at the age of 14 years, broke his collar bone playing football. Good health followed until he was 21 when he had what was called typhoid fever. In July, 1912, he was examined and found to have consumption.

Here again, although the patient seems to feel that his original injury had something to do with his present condition, there is not sufficient evidence to justify any such conclusion.

CASE 4. J. McD. In 1893 this man was thrown off the running-board of a car and dislocated his left shoulder. He was sick one month. He remained in good health until ten years later when tuberculosis developed.

CASE 5. B. P. This patient, when a young boy, fell off a roof and injured himself about the chest. Tuberculosis developed ten years later.

CASE 6. M. L. In 1905 he fell forty feet while painting and injured himself most severely. Six years later he developed consumption.

In these last three cases there is no evidence to show any connection between the injury and the later development of tuberculosis.

Cases of tuberculosis following chest injuries are not uncommon. In such cases the train of events is usually so clear as to leave no doubt as to the part played by the injury as the direct or proximate cause of the subsequent tuberculosis. So far as the question of recovery of legal damages is concerned, it is immaterial whether the injury has led to a definite infection with tuberculosis or has awakened an old latent process. Thiem reports the case of a mason who fell and fractured his skull. On examination at this time his lungs were found to be normal. He recovered from the injury, but during convalescence developed a pleurisy which turned out to be tuberculous. The same author reports the case of another man who was struck in the side by a heavy box. Six months later he had a hemorrhage and developed consumption. The following case is a striking example of pulmonary tuberculosis developing after a chest injury.

CASE 7. S. P. H., officer Metropolitan Park Police. Prior to October, 1908, this man was in excellent health; in fact, he had never had any serious sickness in his life up to that date and was in appearance one of the strongest men physically in the entire force. In October, 1908, while doing duty on a motor cycle in the Middlesex Fells District, he met with an accident in endeavoring to avoid collision with a small boy. He lost control of his motor cycle, was twisted round and round on the highway several times and hurt his right side severely. Another officer arrived shortly, stopped the engine and helped him up. He began coughing immediately and raised some blood and continued that night and the next day to raise blood. His right side pained him for a long time, and he never really felt as well as before the accident. From the date of the accident up to March, 1909, his general symptoms were a slight cough, occasionally raising blood, and constant loss of weight and strength. He was not obliged, however, to give up duty until March, 1909, when he stayed at home for one week and consulted a physician, who treated him from time to time during the period from March, 1909, to August 20, 1909, but told him that he did not have tuberculosis. Between August 20 and August 30, however, he was examined by three specialists, who reported that he had tuberculosis of the right lung, which disease began to develop rapidly from that time. On September 3, 1909, he went to the Rutland State Sanatorium for treatment, remained there eight months, returning to duty May 1, 1910. He worked in the station at Middlesex Fells until May 30, when he was taken sick and confined to his bed, and on June 27, 1910, he applied for a pension. During this last sickness he was advised by physicians to go to Colorado. This he did. The condition and progress of his disease is such that it is not expected now that he will live very long.

The Metropolitan Park Commission asked one of the writers (J. B. H.) to decide as to whether or not this man should receive a pension on the basis that his present condition as a consumptive was directly due to the original accident which occurred while he was on duty as an officer. In view of the fact that previous medical examination and testimony of others had shown that he was not suffering from any disease of his lungs or elsewhere, but rather that he was an exceptionally strong and healthy individual, it seemed clear that his present sickness was directly due to the accident and that he should receive a pension on this account. This opinion was given to the Board and a pension granted accordingly.

The second class of cases, when the injury is not to the chest itself, but to another part of the body, offers problems far more difficult of solution. The following case is a striking example of this:

Case 8. J. L. Age, 22; female; married. Previous to the accident this patient had been examined numerous times in the course of minor illnesses by her family physician and was found to have perfectly sound lungs. In September, 1909, while leaving an elevated car her hand was jammed in the sliding door and severely crushed. The patient was immediately taken to the Boston City Hospital where it was found that a miscarriage had taken place. After careful treatment for this at the hospital she returned home; flowed off and on for two months and did not regain the usual health and vigor which she had enjoyed prior to the accident. She was under the constant care of her family physician and given good medical treatment. Four months later, in January, 1910, she developed a cough and in March, 1910, was found to have pulmonary tuberculosis and was sent to one of the State Sanatoria. The process in her lungs still remained active, and in December, 1911, at her last examination, bacilli were still present in the sputum.

One of us (J. B. H.), who had been called in consultation in this case, testified at the trial that in his opinion the pulmonary tuberculosis was directly connected with the original accident. The jury awarded damages to the patient, and later the Supreme Court affirmed this verdict.

Recently the Supreme Court of Minnesota* gave damages for the death of a man from pulmonary tuberculosis who had suffered a severe accident eight months prior to his death. He was then 43 years old, in perfect health according to a good medical evidence, weighed 188 pounds and was a big, robust man. He received a severe head injury with considerable shock and concussion, as a result of which he was confined to the hospital for one month. He continued to lose steadily in health and strength and soon developed consumption, from which he died eight months later. The defense argued that pulmonary tuberculosis often attacks men of robust health and kills them. The Court, however, believed that the evidence was sufficient to sustain a finding that the injuries suffered were the proximate cause of this man's death; he further stated that, although these questions are often obscured by technical learning, they are usually questions of fact for the jury, to be solved by the exercise of good common sense in the consideration of the evidence in each particular case.

In a somewhat similar instance in which a man developed valvular cardiac disease, subsequent to an open wound of his leg and the accompanying sepsis, the judge instructed the jury that the test of the relation of cause and effect was not whether the condition ensuing after an accident was a common, ordinary one, but whether it does not sometimes follow, and, as a matter of common knowledge and experience may be expected sometimes, probably in rare cases, to follow such an injury. This ruling was later approved by the Supreme Court and the man was awarded damages.*

Chief Justice Knowlton states the difficulty in these cases thus: "The question is often difficult to decide whether an unusual condition is the active, efficient, and proximate cause of a subsequent event, or is only a producer of conditions which open the door to another cause which directly and actively produces the result."† No definite ruling can be laid down according to which these cases can be decided. They are bound to occur frequently, and in the case of pulmonary tuberculosis, more and more frequently, as the public gains knowledge in regard to this disease. A physician, when called to give evidence, or to decide any such instance, should carefully weigh the facts and decide accordingly.

* Healy vs. Hoye (Minn. 132, N. W. R. 208).

* McGanahan v. N. H., N. H. & H. R. R., 174, Mass., 211.
† Daniels v. N. Y., N. H. & H. R. R., 183, Mass., 393.

Clinical Department.

CHRONIC FOCAL SUPPURATION OF THE HEAD WITH GENERAL SYMPTOMS, ESPECIALLY IN ADULTS.*

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This paper and the following cases are presented for your consideration, with no claim that any new theory is being advanced, but because the author believes that such infections are constantly being observed by every practitioner in medicine in whatever department, and that the results lead to invalidism and often death if not detected.

The clinical picture may be that of chronic arthritis, peri- or endocarditis, adenitis, tuberculosis, nephritis, pleurisy, erysipelas, myalgias, indigestion, neuralgia, skin manifestations, general sepsis, etc., but the focal infection or portal of entry of the invading organism is becoming more definitely known by confirmatory observations from many investigators.

During the last decade and particularly during the last two years, many observers have reported cases of acute infection with involvement of the serous membranes, where the invading organism obtained entrance by way of the lymphatics of the throat, notably Waldeyer's ring, which includes the faucial, lingual and pharyngeal tonsils as well as the follicles in the pillars and pharyngeal wall, among whom are Libman, Apolant, Kretz, Gerhard, Holmes, Perigord, Dock, Hanot, Hedaeus, Jessen, Richardieu, Lermoyez, Metzner, Mayer, Rosenberg, Leyden, Morse, Jeppel, Kraske, Mayer, Trumbull, Joal, Fraenkel, Heubner, Bahrdt, Babes, Stephanides, Finger, Halstead, Loeb, Thompson, Rosenheim and others.

* Read before the York County Medical Society at North Berwick, Maine, October 10, 1912.

These cases have for the most part occurred under puberty, with the symptoms active and apparent as an acute follicular tonsillitis, with the attendant fever, pain and circumscribed white patches, indicative of such local process.

The following cases differ, first, in that they are for the most part chronic infections. Second, the clinical manifestations are those of a general disease. Third, they may primarily or secondarily have their atrium in Waldeyer's ring. Fourth, they occur in adults. Fifth, they are manifest as acute exacerbations of a chronic process with slowly progressive physical incapacity extending over a term of years; during this time they may or may not endanger life. Sixth, the active invading organism as observed by Dwyer and Gijnoux, Davis, Lemoine and others, is usually some form of streptococcus either alone or associated with a variety of other bacilli. In all cases the path of infection is by way of the lymphatics.

In the first case to be reported the portal of entry was through the tonsil. Here the lymphatic vessels drain into the superficial cervical glands, first at the angle of the jaw and then beneath the sternomastoid muscle into the deeper chain. Quoting from Halstead, the anastomosis is so free of the lymphatics of the vessels and glands in the neck, that any and almost all of them, superficial and deep, anterior and posterior, may become invaded and involved in the infection that has reached out from the tonsil. Absorption takes place into the tonsillar substance through the intercellular spaces of the epithelial lining of the exposed surfaces and of the crypts. The bacilli then enter the lymphoid tissue of the tonsil, where they are likely to be destroyed by the leucocytes, unless this tissue, through local disease or constitutional debility, be unable to overcome the invader. The healthy tonsil is then probably a protection against the deeper invasion of the pathogenic microorganisms which infest the mouth. When, however, the tonsil becomes diseased, as evidenced by hypertrophy and enlargements, or the crypts become filled with cheesy concretions, showing a diseased condition of the mucous membrane lining the crypts, the tonsil invites invasion of pathogenic germs, and instead of being a barrier, becomes an aid to their absorption into the deeper glandular structures.

CASE I. 1912. March 29. Dr. O. C. S. D. 56 years old. Physician. Born in Maine.

Family History.—Mother alive and well at 84. One brother and one sister well. Father died of angina pectoris at 74. One sister died at 26 of acute rheumatism. One brother killed by accident.

Past History.—Rheumatic fever at 12 years. Pneumonia at 13 or 14. Grippe at 38. Some digestive disturbance while abroad at 39, gas pressure, no colic or jaundice. Otitis media followed cold and sore throat at 50. Eighteen months ago patient had muscular pains and lameness following a hard cold. Had more cold and was in bed with pain and lameness similar to present in muscles. (Does not remember about throat or jaundice.) Bed two weeks.

Present History.—Had follicular tonsillitis Christmas week and felt a little below par till the middle of January, 1912. January 15 felt a little prostrated and January 17 felt so sick that he went to bed. Had sore throat, pain in the muscles and a day or two later was jaundiced. Temperature up to 102° and had some fever for two weeks. Jaundice cleared up. Pain was in the muscles of his legs, arms and chest and required opiates once or twice a day. Hurt to take a long breath. Face not puffy. After two weeks pain and soreness slowly abated and patient sat up in a chair. Throat sore while in bed. Some cheesy material was expressed from tonsils. Had more pain whenever the throat was sore. Four weeks ago had throat examined and pronounced negative so far as general symptoms were concerned. Yesterday throat felt a little sore. Has been getting slowly better, but muscles are stiff and weak. Gets out of chair with difficulty and cannot dress himself alone. Has pain in shoulders on lying down. No dyspnea. Appetite good. No cough. Ankles swell slightly at times. (Wife says for years he has had mild attacks of something similar to this attack.) No nocturia until lately.

Habits.—Bowels fairly regular. Takes a little soda phos. Tea, one or two cups. Tobacco, none. Alcohol, none. Diet: Breakfast, grape fruit, two eggs, dry toast, one cup coffee. Dinner: Chops, small potato, two vegetables, two baked apples and occasionally a little custard, cup of coffee. Supper: Fish, prunes, bread or potato, one cup tea. Water, seven glasses besides tea or coffee.

Pulse 96. Blood pressure, systolic 150. Diastolic 120. Mitral regurgitant murmur with slight dilatation.

March 29, 1912.—Patient was first seen by the writer. Physical condition poor and walks like a case with lumbago: stooping, with muscles of back held rigid. Patient could not take his coat off alone and is very weak.

History confirmed as above. Nasopharynx normal. Mucous membrane not injected. Sinuses negative. Left ear shows e. f. f. o. m. s. Pharynx and mucous membrane of tonsils normal. Cryptic disease however was present on careful examination, and a half teaspoonful of clear pus was expressed from the left tonsil, showing an enclosed abscess. Right tonsil contained cheesy detritus.

Treatment.—Operation with complete enucleation of the tonsils was recommended. Patient had urgent business that he felt required his return home first, so that the crypts were freely opened with Leland knives and washed out with the hope that he might escape another acute attack until arrangements could be made for him to enter the hospital. He was also advised to use an alkaline gargle combined wtih peroxide. On his return home he had an acute exacerbation, so that it was May 3, before both tonsils were enucleated under ether at 38 Newbury Street. Muscular atrophy was present in the shoulders and upper arm, requiring massage, and the patient was sent into the suburbs to take gradual exercise.

May 1.—B. C. 4,260,000. H. 68%. Weight 147½ pounds. Nineteen days later, May 22, B. C. 5,040,000. H. 82%. Weight 156½ pounds. Left arm muscles very good after exercise. Right less improved. Appetite good. Walks two to three miles a day. Is some lame after exercise but feels well.

Dressed fully this A. M. alone for the first time since January. Jaundice has cleared up.

October 1.—Patient has resumed his practice and now takes long drives without fatigue. Considers himself well.

So far as any one can judge, this patient would have been a hopeless invalid in another six to twelve months.

CASE II. Oct. 30 1911. F. S. T., born in England, 44 years old, single. Occupation, butler.

Past History.—Ten years ago a spur was removed from his right nose. On the third day there was pain in the right ear, followed by discharge. Twenty-four hours later pain in the left ear, for which he consulted his aurist, who succeeded in preventing suppuration. One month later the patient noticed considerable throat irritation accompanied by cough for which he consulted a well known lung specialist who examined the sputum for T.B. with negative result, but thought that he detected a small area of consolidation in the apex of the left lung and advised that he spend the winter in California, which he did. During the next six months the patient lost 10 pounds and had a distressing cough, especially in the morning. With warm weather his condition improved, but recurred in the early fall. Sputum was again examined and found negative. Physical signs in the chest remained the same and he returned again to California. On returning east in the spring, he improved during the summer and had a return of his symptoms in the fall. Examination by the same specialist with the same results. This time he went to Colorado and returned east in the spring unimproved. The succeeding years showed a steady increase in the cough, which was accompanied by thick tenacious sputum, often followed by retching. This was marked at night and early morning and patient was twenty pounds below weight. There were frequent exacerbations with a slight rise of temperature which were thought to be grippe. There was vertigo on stooping and asthmatic breathing with buzzing tinnitus in the right ear. With the exacerbations there was throat irritation, for which he was frequently treated. Patient normally weighed 180 pounds, but he was now emaciated, shoulders stooping, face flushed, breathing asthmatic with muscular weakness and a persistent cough. Following one of these attacks he was seen for the first time by the writer who obtained the above history.

Local examination of the nasopharynx showed a slight purulent discharge between the right middle turbinate and outer nasal wall. Septum deflected to the right in upper third. Left ethmoid bulla enlarged and turbinal shrunken. Postnasal discharge passes down right side of pharynx through Rosenmueller's fossa, accounting for the condition of the right ear. Bad taste in the mouth in the morning. No local tenderness or headaches. Right antrum dark by transillumination.

Treatment.—A trocar was passed into the right antrum and a large quantity of foetid purulent discharge was removed. Patient was sent to a private hospital but during the night developed a temperature of 101° with persistent cough which he said was similar to previous attacks. There were mucous râles over both lungs and pain in the left chest. Operation was delayed a week and four sputum examinations were made by his physician with negative results. He also thought that there was trouble in his left lung.

November 17.—A radical operation on the antrum through the canine fossa was performed and the whole antrum was found lined with a thick pyogenic membrane, which was removed and the cavity packed. The cough immediately stopped. The patient regained his normal weight and has remained well. The pain in the left chest also disappeared.

An analysis of the above case shows an acute infection ten years ago following the removal of a spur from the right nose. This caused an acute otitis media on the right, and then on the left side. It is also probable that the right antrum was involved at the same time, accompanied by a post nasal purulent discharge, which caused his cough and the frequent acute exacerbations were attended by fever, pain in the chest and systemic involvement which had extended over this long interval.

CASE III. Nov. 4, 1911. Mrs. G. W. A., 34 years old, American, married, two children.

Past History.—Patient well nourished, 140 pounds. Has had measles, whooping cough and scarlet fever. Tonsillitis every winter, (cryptic). Grippe three times. Abscess in the right ear one year ago with slight discharge since of a few drops. Occipital headaches accompanied by many nervous symptoms, dyspepsia, vertigo and sensitive areas over the scalp have been present for a year during which time she has been under the care of her family physician.

Examination.—Chronic suppuration of the right ear, very slight in amount. No external discharge. Adhesion of the margin of a large posterior perforation to the promontory. Through the perforation some cheesy looking material could be seen coming from the attic and on being teased a large cholesteatomatous mass was removed. The nasal septum was deflected to the right and a horizontal ridge extended through the inferior meatus. There was a postnasal discharge and cryptic tonsillar disease.

It was explained to the patient that the condition of the ear probably accounted for her headaches, vertigo and dyspepsia and that they were dangerous symptoms, and a radical mastoid operation was advised. This was performed under ether anesthesia and on removing the cortex and entering the middle ear the tegmen was found perforated and the dura exposed. The ear had probably discharged longer than the patient thought. A skin graft was introduced on the seventh day. Her recovery was uneventful and her symptoms disappeared.

This history is one very commonly obtained by aurists in which a slight discharge from the ear is considered of no importance by the patient and often times by the physician until suddenly serious symptoms portend invasion of the meninges or sinus thrombosis, and where the patient is treated for headache, indigestion or vertigo on general principles.

Any moisture from the ear must result in granulations, blocking free drainage, followed by the danger of pressure necrosis and exposure of the dura. This may go on without active

symptoms, until suddenly the patient's life is in danger.

CASE IV. Aug. 12, 1912. H. M., 43 years old, married. German descent. Wholesale clothier. Was referred by Dr. A., who gave me the following history. First seen by Dr. A. June 26, 1912, referred to him by an orthopedist.

Family History.—Father died of pneumonia at 59; duration, 10 days Mother died at 61. Shock, lived five years after with hemiplegia and aphasia. Three brothers, two sisters. Two brothers died at about 50 years. One from shock. The other had some spinal trouble, accompanied by severe pain in the head and back. Duration two to four years. Three sisters dead. One died at about fifteen from heart failure. Two others died at about fifty, apparently from cancer. One paternal uncle was said to have had gouty rheumatism. Two of his brothers are said to have had similar gouty attacks.

Past History.—When patient was twenty years old, he was treated for syphilis by Dr. U. Had a local sore and had had gonorrhea before. Does not remember any secondary lesions. Treated three years until discharged. Knows of no sequelae. First attack of gout was a year or two before or after his specific disease. Does not remember which. At that time it was all in the joint of his left big toe. Was free from attacks for fifteen years; then had recurrence and attacks have been more frequent of late. Had orchitis. Abscess opened near rectum. Seventeen years ago was in New York and was laid up four months. Fourteen years ago something was removed from inside of the eye. Has been operated for gall-stones and appendicitis.

Examination.—Patient 5 feet 11½ inches. Weight 185¼ pounds. Pulse 84, regular and rhythm good. Heart and lungs negative. Blood pressure 150. D. 90. Abdomen negative. Pupils react sluggishly, but O. K. Knee jerks normal. No tophi in ears. Mucous membrane of mouth and throat normal. High arch and peculiar formation of palate. Eyes tend to converge. Patient says they were always so. Right elbow has been effected but shows nothing definite. Chief trouble was in the tip of the ulna process. Both big toe joints are swollen and stiff. Right looks red. Exostoses (or tophi) on back of both os calces. Wears plates. Habits steady since marriage 13 years ago. Smokes six to seven cigars a day. Uses moderate amount of alcohol. Coffee twice daily. General health good. Bowels regular. Sleeps well. Urine examined several times with negative results. For past five years the trouble with his feet has been almost constant. At first it was confined to the big toe joints, which were red, swollen and very angry. Later it has effected other joints of his feet and also the right elbow. Has two or three severe attacks a year with other more moderate attacks. Last severe attack was three weeks ago and his feet were much swollen and painful. Was under the care of an orthopedist one and one-half years and fitted to plates. July 23 had a slight attack and Dr. A. notes that it is a question whether this was gout or an effection from the throat, affecting the most susceptible joints. Has been on treatment and a purin-free diet which was continued. July 30 had an uncomfortable week.

Aug. 5 had pain and swelling in left wrist and hand, which were red and swollen. Does not know whether he had a focal infection; awoke with severe pain.

Aug. 13 was seen by the writer and in addition to the above history the patient recalled that he had had a peritonsillar abscess on the right side thirteen years ago. Since that time he has had the above gouty attacks and during the last year there has been much muscular soreness with increasing frequency; also days in which he felt dozy, languid and depressed. His joint attacks were becoming more frequent and he was often laid up for from one to three weeks.

Examination.—After close questioning he remembered that his muscular soreness and joints attacks were preceded by slight sore throat, but not marked. Nares negative. Mucous membrane, pharynx and tonsils, normal in appearance. Tonsils enlarged but do not project beyond the pillars. No cryptic disease found or history of follicular tonsillitis. After repeated examinations a deep abscess was found in the right tonsil with a small opening from which was expressed one-half teaspoonful of clear pus. The right ear shows the effects of an old abscess. Tonsillar enucleation recommended.

August 21.—Tonsils removed under ether. This was followed by a pronounced reaction with swelling of hands and right foot and slight discharge from right ear. Tonsils covered with a heavy exudate. Patient was much prostrated and lay with his hands supported on a pillow. The pain and muscular soreness was pronounced. He was confined to the hospital and his house for three weeks.

September 17.—Patient had an attack in his hands and feet without involving the big toes; more transient and pain less severe.

December 28.—Patient has not been entirely free from pain in his right knee and instep since the operation, but has had no pain in the toe joints. No muscular soreness. Has been to his business daily for two months. Has regained his normal weight and feels better than for some time.

It is too early to draw definite conclusions. The case may be one of combined gout and infectious arthritis. But it is reasonable to suppose that so much free pus was a factor in the etiology of the myalgia and arthritis in many of his attacks and was probably a sequel of his peritonsillar abscess thirteen years before. The abscess was situated deeply so that there were no surface indications of chronic congestion but the toxic material was thrown directly into the lymphatics of the neck.

CASE V. Oct. 10, 1907. E. W., 10 years old. Goes to school. Irish American. Referred by Dr. E.

Past History.—Measles. Scarlet fever. Frequent attacks of cryptic tonsillitis. During the last two years has had dyspnea following the acute attacks and for a year has been out of school most of the time. Would begin to gain when she would have a slight sore throat, followed by shortness of breath and weakness which would confine her to the house for from one to two weeks. Her attacks were becoming more frequent.

Family History.—Negative.

Examination.—Physical condition poor. Color bad, round shouldered and she comes up stairs slowly on account of difficult breathing. Nares negative. Vault clear. Tonsils enlarged and show cryptic disease, especially the left. Cervical adenitis on both sides. Has seen two throat specialists who refused to operate on account of her general condi-

tion. Lungs negative. Urine normal. Fifteen pounds below weight. Heart enlarged with a mitral systolic murmur. Anemic. Digestion poor.

Treatment.—It was explained to her parents that she would probably die if nothing was done and that the throat infection was so clearly connected with the endocardial exacerbations, that removal of her tonsils might help her, but operation was not urged. It was consented to and under ether anesthesia both tonsils were removed as rapidly as possible. Bleeding was not profuse and the convalescence was normal. Six months later Dr. E. reported that she had gained fifteen pounds, was having no dyspnea and was symptomatically well.

Case VI. May 5, 1909. A. H., single, female. Domestic. Born in Ireland. Age 26 years.

Family History.—Grippe four months ago slightly. Indigestion. Measles at nine years. Catarrh for five years since coming to this country. Head colds often. Sneezes and has anterior discharges with odor and loss of sense of smell. Is 20 pounds below weight. Easily tired and finds difficulty in retaining her position on account of the odor from the nose. Four years ago history of right pleurisy for a week. Cheeks frequently flushed and feel hot. Digestion poor. Menses normal. Has cough especially in the A. M with expectoration and the general appearance of tubercular disease.

Family History.—Father died at 74 of apoplexy Mother died at 54 of tumor. Two brothers and three sisters well. Mother and one sister had goitre.

Examination.—Nares covered on both sides with a thick crust, that can be removed en masse with nasal forceps, showing underneath a foetid purulent discharge over the entire outer wall. Both turbinates showed chronic suppurative ethmoiditis present. The pharyngeal wall looked glazed and both sphenoids showed bare bone.

March 21, 1910.—Report from the Boston Consumptives' Home showed lungs negative. No T.B. in sputum and no reaction to the tuberculin test.

Treatment.—Both ethmoid labyrinths were exenterated and the anterior wall of the sphenoids removed.

This was one of my early cases of ozena and it was nearly a year before the patient was cured. She has now regained her normal weight, has no odor or discharge, and uses no nasal wash. Indigestion, hectic cough and malaise have disappeared and she has been free from symptoms for a year.

Case VII. Feb. 13, 1910. G. C. S., female, married. American. 53 years old. Born in Maine.

Past History.—Diphtheria at 12 years. Ptomaine poisoning 20 years ago. Follicular tonsillitis often. Has days in which she feels drowsy with disinclination to attend to her household duties and slight sore throat with white spots.

Family History.—Negative.

Three weeks ago while in the country she noticed a swelling in the right neck under the jaw. The swelling varies, apparently goes down and then reappears. With the disappearance of the swelling, the mouth seems to have increased secretion. Feels fuller on the right side (inside the throat), but no pain. Has been examined by three surgeons, who all agreed that there was obstruction in Wharton's duct or within the submaxillary gland and recommended an external operation.

Examination.—Nares and vault of pharnyx normal. Sinuses negative. Two crypts in the right tonsil contain cheesy detritus. On the lateral wall on the right side of the pharynx, fine radiating red lines pass from one large lymph follicle, which is enlarged for an inch downward, and from which free pus can be expressed. Right Wharton's duct normal. Right submaxillary gland very large and hard.

Treatment.—Pharyngeal follicle was opened on a grooved director downward to its base. Surface curetted and touched with 95% carbolic acid. Five days later all swelling had disappeared from the submaxillary gland.

This case shows the importance of examining the lymphoid tissue in the follicles as well as the larger glands as possible portals of infection and explains many cases of acute exacerbations of arthritic disease where the tonsils have been removed, and where the patient still complains of sore throat.

Case VIII.—Sept. 12, 1901. C. N. S., female, 53 years old. Married. Born in Maine.

Consulted the writer for a subacute attack of erysipelas of the left side of the face. October 2, there was a second attack of the same side and subacute in character. There was a history of left supra-orbital pain at intervals during the preceding two years, becoming more frequent.

Examination.—Right nares negative. Left showed a polypus between the left middle turbinate and outer wall. Myxomatous tissue around the nasofrontal duct and some crusting obstructed the drainage. Patient admitted having used her finger to remove the crusts.

Treatment.—Polyp removed and myxomatous tissue about the duct. Drainage improved. No recurrence during the last eleven years.

Prof. W. H. Welch in a communication to Dr. C. R. Holmes of Cincinnati in 1907 says that in his opinion streptococcus erysipelatis cannot be distinguished by any properties, morphologic, cultural, or pathogenic from streptococcus pyogenes and practically all authorities in bacteriology consider the two identical. It has been a well known fact clinically that in the absence of any obvious source of free pus from the ear, sinuses or throat in so-called ideopathic or medical erysipelas of the face, that a source of infection is often found in some erosion of the nares, more often on the septum, where the crust can be infected by the finger of the patient.

CONCLUSIONS.

Every infection must have some portal of entry. Bacteria do not invade normal mucous surfaces.

The path of infection, being by way of the lymphatics, it is obvious that we should examine carefully the glands and lymph follicles through or from which the infection must come; also the teeth and sinuses of the head. This is more important in adults than in early life in the case of the tonsillar tissue as its resistance is low-

ered from the fact, that if not the seat of a chronic hyperplasia it would long ago have disappeared. Also the blind closure of the crypts lends itself readily to the formation of enclosed abscesses during the process of retrograde metamorphesis, when its resistance to infection is lessened. A small amount of tonsil tissue entirely concealed behind the anterior pillar and when seen innocent in appearance may be but the shell of such an abscess. On the other hand, it may lie deep in the space between the superior constrictor and the tonsil with only a small sinus tract communicating with the surface, so that the focal reaction is only manifest in the deep cervical lymphatics and pus may not be detected without grasping the glandular tissue with strong forceps.

The nasopharynx, now recognized as the beginning of the respiratory tract from peculiarities due to developmental processes or from injuries and its relation to the activity, as well as retrograde changes in the large lymphoid masses in the vault of the pharynx, and fauces, and from the large number of bacteria which it harbors, which may become pathogenic, is being found more often than formerly supposed to be the foci of many obscure general systemic conditions.

FRACTURE OF THE FIFTH METATARSAL BONE BY INVERSION OF THE FOOT.

BY WM. PEARCE COUES, M.D., BOSTON.

ROBERT JONES[1] in 1902 was the first surgeon to recognize and describe this injury. Until his personal case and others reported by him were described, fracture of this metatarsal by indirect violence was supposed impossible.

Cotton and Sylvester[2] and Cotton[3] added to our knowledge of this subject by reported cases in this JOURNAL in 1902 and 1906, six cases in all.

Cases have since been reported and the fracture is now given special reference in most modern surgeries. At the same time the fracture is little known generally, often unrecognized and even unheard of by surgeons not paying special attention to fractures, so that an additional case seems of interest to report.

Mrs. R. D., 50 years, weight 167 pounds, was seen August 2, 1912. The history, which is typical of this injury, was as follows:—

While walking in some meadow land this morning the left foot slipped in a slight hollow. The foot was inverted, and the patient for a brief period bore the weight of her body on the inverted foot. There was immediate pain and disability, though not extreme. The patient walked with difficulty. Examination that afternoon showed the following:—

A well developed and nourished, rather stout woman. The dorsum of the left foot is slightly swollen, but the swelling does not extend to the malleoli. There is no synovitis demonstrable, and no ecchymosis. Examination of the tibia and fibula regions show nothing abnormal. Weight bearing on the injured foot is possible but extremely painful. Palpation over the base of the fifth metatarsal bone is very painful. No crepitus or abnormal mobility found. Foot partially immobilized temporarily, and rested in pillow splint. The x-ray showed a fracture of the base of the fifth metatarsal, almost transverse, with no displacement. Foot put up in plaster. Crutches. August 22, plaster removed. Slight callus only. Crepitus plainly felt for the first time. Uneventful recovery from injury.

Mechanism of the Fracture.—The foot is inverted with the heel off the ground, as pointed out by Jones. The body weight is momentarily supported by the foot in its cross diameter, bringing a great cross strain on the lowest or fifth metatarsal bone.

Importance of the Recognition of the Fracture.—The manner of the accident, precisely that of most sprains, will lead to that diagnosis, particularly if there is nothing found in the tibia or fibula regions. Careful examination of the metatarsal regions should be made. Exquisite pain on only moderate pressure upon the base of the fifth metatarsal is pathognomonic of the injury. The treatment calls for no unusual methods. The diagnosis of the injury from sprained ankle is the important point.

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BRAIN TUMOR. OPERATION. AUTOPSY FINDINGS.

BY E. D. BOND, M.D., AND A. H. PEABODY, M.D.,

Danvers State Hospital Contributions, No. xxvi.

TWO CASES.

IN the records of the one hundred autopsies just completed at the Danvers State Hospital, 1501-1600, appear two cases of cerebral tumor upon whom operations were done at Boston hospitals. One a glioma, one a melanotic sarcoma, they illustrate difficulties of localization and present an interesting contrast in accompanying mental states.

AUTOPSY 1588. Married woman, white, age 42. At 39 she had three operations for the removal of a small tumor "just under the right scapula." The pathologist's report on the material from the last operation at the Massachusetts General Hospital was "Rapidly growing carcinoma." At 41 a hard irregular lump was removed from the margin of the right breast. Surgical diagnosis, "Melanotic sarcoma"; pathologist's report, "Tuberculosis or cancer." Examination of the left breast at this time disclosed a soft, fluctuant, movable tumor.

Seven months after this last operation she began to suffer from severe headaches, impairment of eyesight, slight nausea. Twelve months after, she entered the Massachusetts General Hospital showing

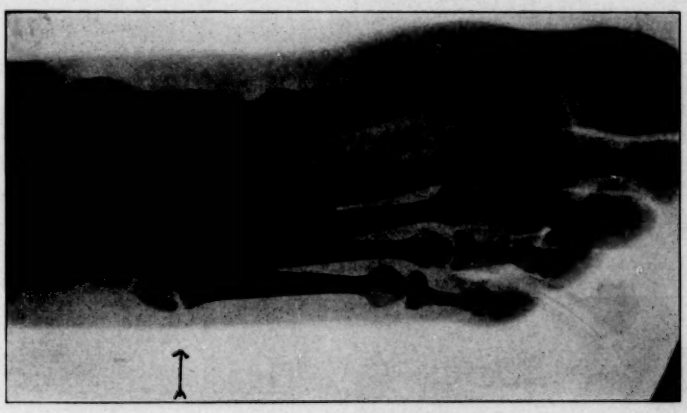
choked discs, paresis of the left seventh nerve, eyes prominent, pupils normal, absent knee-jerk on the right, Babinski on left. After a week a decompression operation was done, the lower Rolandic area right being exposed. The brain was under great pressure, and bulged through the opening, but otherwise nothing abnormal was found. Some relief of symptoms followed operation, but eleven days later paralysis of the left arm and leg appeared. Becoming delirious, she was transferred to this hospital about seven weeks after operation. Here examination showed hemiplegia, R. hemianopia, absent knee jerks, Wassermann negative in blood and in cerebro-spinal fluid, which was under great pressure.

Microscopical examination of the nodule under Nissl's stain showed large cells in alveolar formation; the nuclei were large with mitotic figures. Some of the cells contained a deep brown pigment, and scattered through the area was a small amount of pale brown pigment not confined to the cells. Surrounding the alveoli appeared an intense proliferation of glia.

The small "hemorrhagic areas" showed often no hemorrhage but groups of the large pigmented cells shown in Fig. 1.

In this case we hazard no guess as to the connection between the later developing brain tumor and the excitement and suicidal tenden-

FRACTURE OF FIFTH METATARSAL BONE.—COUES.



Fracture of fifth metatarsal by inversion of foot. Patient of 50. Aug. 2, 1912.

Immediately below the area of decompression, in the right post-frontal and parietal region, was a large area of softening. In the left frontal III was a firm nodule 1 cm. in diameter, and scattered throughout white and gray matter were "hemorrhagic areas," over a hundred in number, and varying from 1 mm. to 4 cm. in diameter. The larger of these were soft and filled with clotted blood; the smaller were firm.

hand. The ophthalmoscope showed absence of the disc outline on the left, and a less cloudy disc right. Wassermann reaction on the blood was negative. He was restless, had frequent involuntary crying spells and changed often from a state of clear orientation to one of confusion.

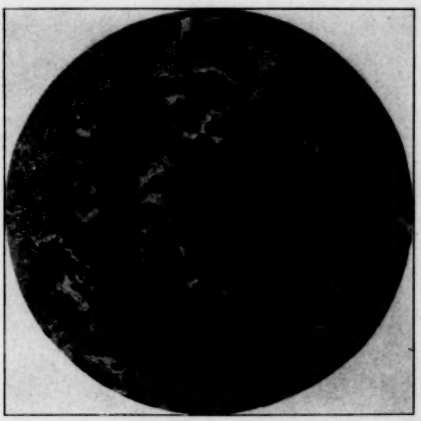
Death followed a severe general convulsion on Nov. 2. On autopsy a tumor mass, microscopically glioma, began in the right precentral convolution

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BRAIN TUMOR.—BOND AND PEABODY.



1520. Glioma.



1588. Cells of melanotic sarcoma in brain. Zeiss 4 mm. Projektionsoc. No. 2.

foot was inverted, and the patient for a brief period bore the weight of her body on the inverted foot. There was immediate pain and disability, though not extreme. The patient walked with difficulty. Examination that afternoon showed the following:—

A well developed and nourished, rather stout woman. The dorsum of the left foot is slightly swollen, but the swelling does not extend to the malleoli. There is no synovitis demonstrable, and no ecchymosis. Examination of the tibia and fibula regions show nothing abnormal. Weight bearing on the injured foot is possible but extremely painful. Palpation over the base of the fifth metatarsal bone is very painful. No crepitus or abnormal mobility found. Foot partially immobilized temporarily, and rested in pillow splint. The x-ray showed a fracture of the base of the fifth metatarsal, almost transverse, with no displacement. Foot put up in plaster. Crutches. August 22, plaster removed. Slight callus only. Crepitus plainly felt for the first time. Uneventful recovery from injury.

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[illegible] irregular lump was removed from the margin of the right breast. Surgical diagnosis, "Melanotic sarcoma"; pathologist's report, "Tuberculosis or cancer." Examination of the left breast at this time disclosed a soft, fluctuant, movable tumor.

Seven months after this last operation she began to suffer from severe headaches, impairment of eyesight, slight nausea. Twelve months after, she entered the Massachusetts General Hospital showing

choked discs, paresis of the left seventh nerve, eyes prominent, pupils normal, absent knee-jerk on the right, Babinski on left. After a week a decompression operation was done, the lower Rolandic area right being exposed. The brain was under great pressure, and bulged through the opening, but otherwise nothing abnormal was found. Some relief of symptoms followed operation, but eleven days later paralysis of the left arm and leg appeared. Becoming delirious, she was transferred to this hospital about seven weeks after operation. Here examination showed hemiplegia, R. hemianopia, absent knee jerks, Wassermann negative in blood and in cerebro-spinal fluid, which was under great pressure.

For the first time the mental symptoms were discovered and grouped, and found to form a curious prelude and accompaniment to the physical appearance.

At 34, five years before the first (skin) tumor was noticed, she was "excited for three or four days, threatened to jump through a window, but talked rationally." She said that something drew her toward the window, but that she "resisted the temptation of her own accord." At 36 she told her husband that she couldn't keep away from the sink where the carving knife was and felt like cutting her throat. At this time she began to feel drowsy, a symptom which continued for the next six years.

At 39 the patient claimed that "a greenhead had bitten her on the back." At the place she indicated in this way the skin tumor was found and excised. From this time to the decompression operation, a period of about two years, which included the three operations on the skin, the later breast operation, many visits to hospitals and doctors, no mental symptoms were noticed by the husband and family, or the attending physicians, except the continuing tendency to drowsiness. A week before the decompression, at the worst of her suffering, the examiner's note is "intelligent," "no evidence of aphasia." Nine days after the operation, but after much morphia, she expressed delirious ideas; "thought she was out on a balcony" (a reminiscence of her suicidal impulses of eight years before!), then became comatose. During the next month she recognized her husband on his visits, but rambled incoherently in her talk to him. On her last day at the General Hospital she was "depressed, confused, poorly oriented"; "I've got myself in so much trouble I'd better keep still; everything's all burned up."

At this hospital she varied between coherent and irrelevant conversation, was roughly oriented, was able to give a good history, apparently had auditory hallucinations, speech defect, was blue, showed judgment defect, but no delusion formation.

Two months after admission she died suddenly. Autopsy was permitted on the head only.

Post-mortem the left pupil measured 7.5 x 6 mm., with the long diameter horizontal. The right pupil was almost round, and 7 mm. in diameter.

Immediately below the area of decompression, in the right post-frontal and parietal region, was a large area of softening. In the left frontal III was a firm nodule 1 cm. in diameter, and scattered throughout white and gray matter were "hemorrhagic areas," over a hundred in number, and varying from 1 mm. to 4 cm. in diameter. The larger of these were soft and filled with clotted blood; the smaller were firm.

Microscopical examination of the nodule under Nissl's stain showed large cells in alveolar formation; the nuclei were large with mitotic figures. Some of the cells contained a deep brown pigment, and scattered through the area was a small amount of pale brown pigment not confined to the cells. Surrounding the alveoli appeared an intense proliferation of glia.

The small "hemorrhagic areas" showed often no hemorrhage but groups of the large pigmented cells shown in Fig. 1.

In this case we hazard no guess as to the connection between the later developing brain tumor and the excitement and suicidal tendencies which came five and three years before the discovery of even the growth on the skin, the drowsiness continuing for six years, the statement that a "greenhead had bitten her in the back." As to the origin of the brain growths, it is interesting that two naevi were observed on the patient's feet. We infer that a similar mole began an abnormal growth near the scapula, sending metastases to the breast and probably to other organs, from which sources the brain was reached.

AUTOPSY 1520. A man of 57, white, a sailor. At 47 his vision became poor, and at 50 diplopia appeared.

June 1, 1911, while pulling in a fish-net, he saw a bright object over his left shoulder moving backward, and followed it with his eyes, turning his head to the left; then became unconscious. On June 7 two similar fits occurred in two hours.

On June 15 he went to the Marine Hospital at Chelsea and remained there until Oct. 2. On the day of admission nothing abnormal was found on physical examination. June 21 he had three fits, and July 8 a visual aura without unconsciousness.

On July 17 came a clonic spasm of the left arm, which later became paralyzed. After some hours there followed paralysis of the left leg. The next day showed these paralyses continuing and a slight involvement of the left face, no sensory disturbance, active knee-jerks, no Babinski. On the 19th blood-pressure was 128, pupils showed nothing abnormal, there was no choked disc. A clonic spasm of the right arm was observed.

Operation on the 20th, exploratory. After entrance over the mid-Rolandic region right through thick, dense bone, a tense but apparently normal brain was disclosed.

After operation there was little physical change, but confusion, hallucinations, and increasing noisiness made necessary his transfer to this hospital on October 2.

Examination here showed a left hemiplegia, sluggishly reacting pupils, the left knee-jerk greater than the right, a left ankle clonus and variable Babinski reaction, complete astereognosis of left hand. The ophthalmoscope showed absence of the disc outline on the left, and a less cloudy disc right. Wassermann reaction on the blood was negative. He was restless, had frequent involuntary crying spells and changed often from a state of clear orientation to one of confusion.

Death followed a severe general convulsion on Nov. 2. On autopsy a tumor mass, microscopically glioma, began in the right precentral convolution

at the top of the Rolandic area and extended forward in the first frontal convolution for 5 cm., ending about 4 cm. from the tip of the frontal lobe. On cross-section it spread out fanlike from the ventricle to the cortex, 2.5 cm. in its greatest width, involving the cortex from the longitudinal fissure to the second frontal convolution. (Fig. 2.)

In this case the fact that the left arm became paralyzed before the left leg was of no help in localizing the lesion *on the surface*, but was a consequence of conditions concealed deep in the brain.

Medical Progress.

REPORT ON PEDIATRICS.

PERTUSSIS.—EDEMA IN THE GASTRO-INTESTINAL DISTURBANCES OF INFANCY.—POLIOMYELITIS.

BY THOMAS MORGAN ROTCH, M.D., AND CHARLES HUNTER DUNN, M.D.

PERTUSSIS.

In a former report[1] the advances in our knowledge of the bacteriology of whooping cough, and the evidence in favor of the bacillus of Bordet and Gengou as the cause have been presented. This bacillus has been generally accepted as the probable cause, the evidence resting on its being found only in cases of pertussis, on its constant presence in the earlier stages of the disease, and on the demonstration in the blood of convalescent patients of antibodies specific for this organism. Evidence based on the transmission of the disease to animals is somewhat contradictory, some observers (Klemenko, Fraenkel) claiming to have produced paroxysmal cough in animals, while others (Wollstein) have failed to obtain this result. The chief obstacle to further advance and to the completion of the chain of proof necessary to assign the etiologic rôle with certainty to the Bordet and Gengou bacillus has been the lack of any definite or characteristic anatomic lesion in this disease. It is probable that the infrequency of cases of deaths from uncomplicated whooping cough, and the extreme delicacy of the tissues of the respiratory tract have been responsible for the inability of observers to find an histologic lesion.

The finding of such a lesion, apparently characteristic of whooping cough, has recently been reported by Mallory and Horner.[2] They studied the trachea and lungs from three fatal cases of whooping cough. They found masses of minute bacteria between the cilia of many of the cells lining the trachea and bronchi. These bacteria frequently occurred in such large numbers as to push apart the cilia covering a single cell. The lesion did not appear to be uniformly distributed throughout the lungs. The micro-organism was a minute ovoid bacillus, and is strongly suggestive of the bacillus discovered in the sputum by Bordet and Gengou.

Mallory and Horner conclude that the toxin secreted by these bacilli must be mild, as the injury produced appeared slight. No necrosis of the cells was observed; at most, only a gradual destruction of the cilia, which is doubtful, as this might be an easily produced artefact. The tissue reaction was slight, although there were evidences of a slight to moderate inflammatory reaction. They believe that the action of the bacilli on the respiratory tract is largely mechanical. The organisms in such large numbers must interfere seriously with normal ciliary action, and thus with removal of secretion of mucus and of inhaled particles; at the same time the production and absorption of a mild toxin is shown in several ways,—by the exudation of leucocytes, by certain changes in the lymph nodules, by the production of the well-recognized lymphocytosis of whooping cough, and by the production of a specific antibody in the blood. It now remains to be proved whether the bacillus discovered by Bordet and Gengou will produce this same mechanical effect or lesion in animals.

The recognition of the Bordet and Gengou bacillus as the probable cause of pertussis has led to the preparation of a vaccine made from this organism and to their trial in cases of whooping cough. The reports from the observers who have used the vaccine are still inconclusive as to its final value, but all agree that it should be given a wider trial.

Zahorsky[3] reports 40 cases of whooping cough treated in private practice. He concludes that it is in general a very helpful therapeutic resource. He observed that in many cases a "negative phase" followed the injection, in which the symptoms appeared to be aggravated. This stage with a moderate dose, 30 million, lasted about 24 hours, but after a large dose, 100 million, may last two to four days. After this period of aggravation occurred a period in which great improvement is observed, which is sometimes so striking as to appear quite remarkable. In about one-fourth of all his cases no effect whatever could be observed, and there were a number of cases in which the effect was doubtful.

Zahorsky believes that the effect of the vaccine is uncertain, and may do harm in cases complicated with bronchitis or pneumonia. His best results were obtained with doses of 30 to 50 million bacteria. He believes the injection should not be repeated too frequently and that the interval should not be less than three days when moderate doses (10 to 20 million) are used, and not less than five days with larger doses. In not a single case in which the vaccine was used did any secondary infectious process appear, freedom from complications appearing to be one of the favorable effects of the treatment. He was unable to produce immunity by vaccine treatment of cases exposed to whooping cough. His best effects were observed when the

vaccine was given at the height of the disease. He did not observe any shortening of the course of the disease, and believes it doubtful if the use of the vaccine hastens permanent immunity.

Graham[4] reports on the use of the pertussis vaccine in 24 cases. He differs from Zahorsky, in believing that the course of the disease is shortened, and that the improvement almost always continues steadily after the injections have been discontinued. The opinions of others, not physicians, coming in contact with the patient were strong in favor of the remedy, both as to its diminishing the severity and number of the paroxysms, and as to its shortening the course of the disease. He observed benefit in 17 out of the 24 cases, or about 71 per cent. He believes the dose should be over 40 million, and does not mention observing any negative phase.

Ladd[5] reports on a series of cases treated by vaccine therapy in the out-patient clinics. No harmful effects were produced. No other treatment was given than the vaccine. In general, it appeared from the statements of the mothers that after these injections the severity and number of the paroxysms diminished. All the children recovered without complications on an average in five weeks after beginning treatment. He believes there is nothing conclusive in his series, but that the vaccine is worthy of a further trial.

EDEMA IN THE GASTRO-INTESTINAL DISTURBANCES OF INFANCY.

Comby[6] presents a very interesting review on the subject of the general edema so frequently observed in infancy in the course of chronic gastro-intestinal disorders. These edemas in some cases may be ascribed to a lesion of the kidneys, heart, or lungs. In other cases they have been ascribed to retention of salts, particularly chloride of sodium, and this has been the usual explanation of these edemas (Meyer). That retention of chloride may cause edema was shown by Comby, who produced edema in an infant by giving a very salty vegetable broth, which disappeared when the salt was suppressed. Comby, however, does not believe this to be the sole or even the commonest cause of these edemas, and that it cannot explain certain cases recently reported by Hume.[7]. In Hume's cases there was edema but no retention of chloride of sodium before the salt was given, and he gave a great quantity of salt without producing an increase of the edema. If these edemas cannot be explained on the ground either of a heart or kidney lesion, or of retained salts, their cause must be sought elsewhere.

In two of Hume's cases there was at autopsy a striking lesion of the adrenals, consisting in a sclerosis of the medullary substance accompanied by a degeneration of the cortical cells. Both children clinically had shown marked improvement under treatment with subcutaneous injections of adrenalin chloride, and the comparison between the course of these cases, and those not so treated convinced Hume that the adrenals play an important etiologic rôle in these edemas. Comby agrees with Hume in attributing these lesions of the adrenals to toxins absorbed from the gastro-intestinal canal. The lesions, through functional disturbances of the adrenals, lead to a reduction of blood-pressure with peripheral cyanosis and edema.

We believe that this is a plausible hypothesis, but that it is not necessary in all cases to suppose a lesion of the adrenals to be a necessary condition in the occurrence of these edemas. That they are of toxic origin, and that the toxins are absorbed from the gastro-intestinal canal is extremely probable, in fact, there is no other satisfactory explanation for their occurrence. It is probable that the toxins in certain cases may affect the adrenals, but it seems to us equally probable that those cases, also fairly common, in which there is a demonstrable lesion of the kidneys, may also be attributed to toxin absorption. Moreover, it seems equally probable that toxins absorbed from the gastro-intestinal canal may affect the nervous system in such a way as to cause a vaso-motor paralysis. The good therapeutic effects of adrenalin can just as well be explained on this hypothesis.

POLIOMYELITIS.

Experimental research has been prosecuted with vigor during the past year, resulting in several contributions of importance to our knowledge of this disease. Flexner has made a number of interesting contributions to our knowledge of the nature and properties of this filterable virus. It is highly resistant to drying, light, and chemical action. In dust it survives weeks and months, and has been detected in one instance in the sweepings of a room occupied by a patient suffering from the disease.

The point which is at present attracting the greatest interest is the question of the routes of invasion of the virus, and the mode of spreading the infection. The most recent experimental evidence on this point appears to be somewhat contradictory. The virus had been demonstrated in the nasopharyngeal mucosa and tonsils of monkeys and human beings infected with the disease, and Flexner had expressed the view that the nasal mucous membrane is the site both of ingress and of egress of the virus of poliomyelitis in man, but until recently all had reported negative attempts to demonstrate the virus in the secretions of the nasopharynx and intestines. Such a demonstration is necessary, if we are to accept the view that the virus is eliminated through the mucous membrane, and disseminated in coughing and speaking through the means of active and passive carriers. The demonstration of the virus in the secretions of healthy persons would complete the evidence in favor of this mode of infection.

Recently this has been accomplished by Kling, Wernstedt, and Pettersson.[8] In their paper they showed the infectiousness of the secretions of the nasopharynx and intestines of persons who had died of poliomyelitis. Flexner and Clark[9] also have shown by experiment that the intestinal discharges are a source of infection. In a recent meeting at Washington, at which the entire morning session of two of the sections of the International Congress on Hygiene and Demography was devoted to poliomyelitis Dr. Pettersson presented a summary of the more recent investigations of Kling, Wernstedt and himself. They have demonstrated that the virus of poliomyelitis exists in the nasopharyngeal and intestinal secretions of persons in the acute stage of the disease, of convalescents, of persons suffering from clinically obscure infections of poliomyelitis and of apparently healthy persons in the vicinity of poliomyelitis patients. The last is perhaps the most important finding. "Virus carriers" were found in six families. These results of Kling, Wernstedt and Pettersson are strongly confirmatory of Flexner's views, and would seem to justify the conclusion that the infection is disseminated by transfer of the virus directly from person to person, "virus carriers" and abortive cases accounting to a large extent for the spread of the disease.

Great doubt has been thrown upon the justification for this conclusion by the results of the observations recently reported by Rosenau, on the possible agency of the stable fly, *Stomoxys calcitrans*, as a transmitter of the disease, which have been published in the monthly Bulletin of the State Board of Health of Massachusetts for September, 1912.[10] The paper represents the remarks made by Dr. Rosenau in a discussion at the recent Washington Congress of a paper by Dr. Mark W. Richardson, on "The Occurrence of Infantile Paralysis in Massachusetts, 1907-1912." Rosenau says that the investigators of the State Board of Health started with a probable prejudice in favor of direct transmission from person to person. Rosenau, Sheppard and Amoss injected 18 monkeys with buccal and nasal secretions from the persons suffering from poliomyelitis, from convalescents, and from persons suspected of acting as carriers, with negative results. Various American workers, among them Strauss of New York, have been unable to find the virus where it should be under the "contagious" theory. Richardson and many other observers have brought out the fact that poliomyelitis does not behave like a contagious disease, showing little or no tendency to spread in crowded districts, schools, and institutions, where we should expect to find spreading of a disease transmitted by contact through secretions of the mouth and nose. On the contrary, the disease, in Massachusetts, was more prevalent in sparsely settled country districts. The analogy of the virus of poliomyelitis with that of rabies, a wound infection, and the experience with yellow fever, influenced Rosenau and his fellow workers to turn to another mode of infection.

The work consisted in exposing monkeys infected in the usual way during all stages of the disease to the bites of the *Stomoxys calcitrans*. Healthy monkeys were then exposed to the bites of the same flies. Of the 12 healthy monkeys so exposed, indications of the disease were obtained in 6, in 3 in a virulent form.

These results are of most striking importance. The demonstration that poliomyelitis can be transmitted from monkey to monkey by the bite of the stable fly opens up great possibilities in the future control of epidemics. It remains of course to be proven whether the disease can be transmitted to human beings in the same way. There is strong evidence in favor of both views as to the mode of infection in poliomyelitis. At present the question as to whether the disease is directly contagious, whether a biting fly is a necessary factor in its transmission, or whether it may be conveyed in more than one way, must remain an open one.

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Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING, HELD AT BOSTON, MASS., MAY 30 TO JUNE 1, 1912.

Owing to the illness of the President, Dr. William Norton Bullard, Boston, the Vice-president, Dr. E. W. Taylor, Boston, presided during the meeting.

NOTE ON THE EXAMINATION OF THE CEREBRO-SPINAL FLUID FOR ARSENIC FOLLOWING THE ADMINISTRATION OF SALVARSAN.

DR. CARL D. CAMP, Ann Arbor, Mich.: The cerebro-spinal fluid was withdrawn by lumbar puncture, following the administration of 0.6 gram of salvarsan by intravenous injection, and examined for arsenic in the laboratory of Dr. Victor C. Vaughan. The interval between the salvarsan injection and the lumbar puncture varied from 15 minutes to 40 hours in the 17 observations that were made. Cases of tabes, paresis, cerebro-spinal syphilis, secondary and tertiary syphilis not affecting the nerv-

ous system were utilized in this research. In only one case was there any trace of arsenic and in that case (3 hour interval) the patient was also being intensively treated with mercury and the trace was too small to make sure of its identity. Another case with the same interval showed no trace of arsenic. Arsenic does not appear in the cerebro-spinal fluid as ordinarily administered, by intravenous injection, unless the dose is so large or so often repeated that there is danger of causing meningoencephalitis.

DISCUSSION.

DR. JOSEPH COLLINS, New York: Two years ago I began to treat cases of nervous syphilis with salvarsan and in that time have treated 137 cases. There have been cures some of which have lasted 18 months which could not have been accomplished by anything else. Among these have been cases of brain syphilis, meningo-encephalitis, vascular syphilis, tabes, syphilitic bulbar palsy, cases of syphilitic clineurasthenia occurring in the wife or husband of patients who have had tabes or general paresis.

DR. B. SACHS, New York: I have published one experience referring to 80 cases and since that time my experience has been doubled. I believe that no remedy that we have ever exhibited or employed in syphilis of the central nervous system has helped us in like degree as salvarsan has. I can not see that the presence or absence of arsenic in the cerebro-spinal fluid would affect very much the question as to whether salvarsan ultimately benefits parasyphilitic or metasyphilitic changes in the nervous system. That it does bring about changes and affect the syphilitic virus as it circulates in the body there is no doubt. Both in private and hospital practice I have followed this matter closely and as a result I have never gone beyond 0.4 intravenously. This dose can be repeated after two or three or four weeks and it is much safer to give a small dose frequently repeated than to give a larger one.

DR. F. X. DERCUM, Philadelphia: In my experience the use of salvarsan in nervous syphilis depends upon the duration of the symptoms. The majority of paretics have not been benefited. As regards tabetics I have not seen any remarkable improvement. There has been cessation of tabetic pains and improvement in the way. One case was injected over a year ago by the intravenous method and pains are still absent. I always follow the salvarsan by mercurial inunctions just as vigorously as if salvarsan had not been used. One acts upon the germ and the other on the tissues. If we do not give the patient both, he does not receive the maximum benefit.

DR. PHILIP COOMBS KNAPP, Boston: I can corroborate what Drs. Dercum and Sachs have said of salvarsan. I have not seen any disastrous results from it and certainly there can be no question of the beneficial effect.

DR. CARL D. CAMP, Ann Arbor: I did not intend to bring up any question of the efficiency of salvarsan in these cases. Of course it comes up incidentally. If the effect of salvarsan is due to its antiseptic germicidal effect, then arsenic or something which represents it should be present in the central nervous system. My own experience as to beneficial results has not been so favorable. The Argyll-Robertson pupils have not disappeared, there was no return of the reflexes, though the patients have in many cases lost their subjective symptoms.

CLINICAL CONFIRMATION OF THE HYPOTHESIS THAT DISORDERED STATES IN THE PARENTS PRODUCE DEFECTIVE OFFSPRING.

DRS. S. D. W. LUDLUM, AND E. P. CORSON WHITE, Philadelphia: From an examination of 600 defective children we conclude that changes in the chemico-physical environment of the developing ovum produces defective children. In all arrests, retarded or defective developments, all environmental factors should be most carefully eliminated before the especial defect should be stated as hereditary. Often, through defective nutrition or other untoward conditions of nurture, the organism is not able to perfect itself in all its parts, not from any germinal defect, but simply because it was not sufficiently nurtured, or because it was poisoned or otherwise injured as shown especially in children born during famine, children of lead workers, etc. Statistics which exclude environment, as diseases or metabolic changes, etc., in the mother or father, are faulty, because, along with organic inheritance, there must be the stimulus of an external developmental environment which supplies the stimulus without which hereditary potentials cannot be expressed. There is at least as much evidence for the retarding of the development of the ovum by untoward circumstances in the environment as there is for hereditary defect. The reason why statistics show such a low per cent. of syphilis or tuberculosis in defective children is because the majority of openly infected children die before their mental defect is definitely demonstrable and it is only those arising from parents with changed metabolism or low grade infection that persist.

DISCUSSION.

DR. PHILIP COOMBS KNAPP, Boston: It is exceedingly rare that we can get an absolutely accurate history of the mother's condition during the period of pregnancy, but even without that it is often possible in these forms of disease, as those of more strictly degenerative character where heredity has been most often invoked, to obtain information as to the mother's condition during pregnancy which certainly must have a marked influence upon the development of the child. Such, for example, as acute infection during the period of pregnancy which will certainly be explanatory of various degenerative mental and physical conditions in later life.

AN EXAMINATION OF THE DUCTLESS GLANDS IN EIGHT CASES OF DEMENTIA PRECOX.

DR. F. X. DERCUM AND DR. A. G. ELLIS, Philadelphia: Our studies were prompted by the view that in dementia precox we have to do with autointoxication. It is only relatively late in the disease that cases of dementia precox show quantitative mental loss, the striking early feature being confusion. In these cases the negative clinical history with regard to infections and intoxications from without points to the conclusion that the toxins are produced within the body. That the ductless glands should be involved in this process of intoxication is extremely probable. That the glands of internal secretion are also closely inter-related to each other, is another fact of prime importance. This relationship is no longer a matter of theory

and of speculation but must be regarded as established. We have reason to believe that the organism in dementia precox is one which unfolds or evolves imperfectly and irregularly and that at the time when adolescence takes place, the response on the part of the ductless glands is imperfect. During the last four years there have been studied clinically in the Insane Department of the Philadelphia General Hospital a large number of cases in reference to the ductless glands. Of these cases, 8 have come to autopsy. Cases 1, 3 and 5 suffered apparently from hebephrenia; 2 and 4 from catatonic, the 6th was catatonic at times, the 7th and 8th while classifiable with hebephrenia, were distinctly paranoid. All of these cases died of tuberculosis. In the cases of dementia precox, the thyroid gland was studied in 8 cases, the hypophysis in 8, the adrenals in 8, the parathyroids in 5, the carotids in 6, the thymus in 1, and of the other glands, the testicles were studied in 1, the pancreas in 8, the spleen in 7, the liver in 8 and the kidneys in 8. One of the most notable points in the ductless gland findings is the underweight of the thyroid in 7 of the 8 cases. In addition 3 of them showed abnormalities in the colloid, quantitative or qualitative, and 4 decided regressive changes in the acinar epithelial cells. In the hypophyses there is less colloid than is usually found in a series of these glands. There was in all probability a disturbance in these cases of what Sajous has called the "adrenal system," *i.e.* of the chain made up of the pituitary, the thyroid and the adrenals. As far as the thyroid gland was concerned, the changes are to be explained in terms of inadequacy. Now Sajous has pointed out that in tuberculosis there is an inadequacy of this adrenal system and the thought naturally occurs that these eight patients suffered from dementia precox for the same reason that they suffered from tuberculosis. It is rather a remarkable fact that the almost universal cause of death in dementia precox is tuberculosis, and, if feebleness of resistance to the tubercle bacillus is due to the inadequacy of the adrenal system, we have reason to infer that this inadequacy preexisted and that it is one of the factors in the makeup of dementia precox.

DISCUSSION.

DR. M. ALLEN STARR, New York: About 15 years ago I was exceedingly interested in the study of cases of cretinism and particularly of myxoedema. It so happened that there came into my office within one week a case of myxoedema in a young woman about 18 and two cases that we would now classify as dementia precox. The striking resemblance in the mental characteristics of these three individuals led me to place these three cases as maldevelopment on thyroid. The people are still under my observation. While there has not been a development of very great genius, yet these young women are perfectly able to live with their families, able to go about ordinary occupations and are fairly good members of society; whereas without that line of treatment they would long since have been confined to an asylum. On the basis of these I have put almost every case of dementia precox that I have seen on thyroid treatment. In a good many of them it has done no good, but it has been of decided benefit in a certain number of cases and I am quite convinced with Dr. Dercum that treatment along this line either of the thyroid or pituitary gland, in a good many cases of dementia precox is decidedly beneficial.

DR. B. ONUF, New York: I have found on the whole that manic-depressive form of insanity is quite responsive to thyroid treatment, as there is a quite distinct effect upon the psycho in the direction of elation. On the contrary, in the dementia precox cases there is a peculiar irresponsiveness to the thyroid treatment.

DR. D. J. MCCARTHY, Philadelphia: In 500 autopsies at the Phipps Institute of patients dying with tuberculosis the thyroid was carefully examined and showed extensive lesions in a large percentage of cases. In this study of Dr. Dercum's great caution should be used on account of these lesions.

MYASTHENIA GRAVIS.

DR. M. ALLEN STARR, New York: I have gathered 250 cases of myasthenia gravis for purposes of analysis. Of these 142 were females and 109 males. The youngest case on record was 2 years and 9 months old, the oldest 72. The age of greatest frequency is between 20 and 30. It is true that the cranial nerves are chiefly affected. Thus ptosis or double vision has been recorded as the first symptom in 40 per cent. of cases. The difficulty in speech is more commonly due to paralysis of the tongue or lips. Difficulty in swallowing has been recorded in 8½ per cent. of the cases. A striking point of contrast between true bulbar palsy and myasthenia gravis is that diplopia and ptosis are present in the former and in true bulbar palsy double vision is very rare. The predominant symptom is weakness in the limbs; easy fatigue on exertion and recovery of power on rest. Enlargement of the thymus gland has been observed in 28 per cent. Its absence in 72 per cent. seems to show that it is not essential to the development of the disease. The pathology of the disease is obscure, but it has been shown that creatinine is diminished in the excretions about 80 per cent. In the large majority of cases death occurred in six months. That the disease is an extremely serious one is shown by a large percentage of fatal terminations within a year of the onset. It is important to differentiate from diphtheritic paralysis and acute poliomyelitis of the acute bulbar type. The use of thyroid, pituitary and parathyroid gland seems to have been very universal in the past ten years, but so far results of this treatment have not been successful. Strychnine and calcium lactate have been used in some cases with benefit..

DISCUSSION.

DR. WILLIAM G. SPILLER, Philadelphia: Cases of myasthenia gravis, with recovery are sufficiently rare to make them worthy of record. Therefore I will relate the following: A middle-aged lawyer had marked symptoms. There was difficulty in swallowing fluids and ocular palsies. In dressing he would put on his trousers and find it a great effort to put on his coat and vest. He commenced his meal and after a few minutes would be unable to continue it. This was five years ago. I had a letter from him in the last two weeks. He had just returned from a journey of 2000 miles and has been able to continue his cases in court with even more ability than before the disease occurred. Calcium lactate is no doubt of value in treatment. I think the avoidance of every form of fatigue, the wearing of smoked

glasses for the house and more deeply smoked ones for the street are essential in treatment.

DR. PEARCE BAILEY, New York: The most characteristic manifestation of myasthenia gravis is its periodicity. Such collections as Dr. Starr has made are very timely, but at the same time, in view of the periodicity, I think there is a danger in the crowding together of so many cases of giving myasthenia gravis a place which it does not deserve. There are so many varying types of the disease. I doubt whether anyone could distinguish between relapsing third nerve palsy and myasthenia gravis. Possibly myasthenia gravis is only a symptom-complex which comes up in organic nervous diseases and as a result of certain intoxications. If we can assume that the ductless glands are the basis of the disease, then the variation of the symptoms might be explained by whatever caused disturbance of their functions and the determination of the type by the particular biological alterations of the muscular system.

DR. CHARLES K. MILLS, Philadelphia: I have seen quite a considerable number of cases of what I believed to be true myasthenia gravis and have published some of them. I have seen cases in which apparent recovery had lasted ten years or more. In my experience diseases, which had been supposed to be myasthenia gravis, had really been hysteria, disseminated sclerosis, forms of cerebro-spinal syphilis and rarely cases of post-infectious paralysis and one or two cases of what were supposed to be poliomyelitis, or poliocephalitis inferior or superior. Treatment in my experience has been rest, with precautions, and the rather increasing use of nux vomica or strychnine.

DR. GEORGE A. WATERMAN, Boston: Myasthenia gravis is not a disease of the nervous system. All its clinical phenomena point to toxemia. I can point an analogy between myasthenia gravis and that other disease of the glands characterized by persistent thymus and tremendous over-development of lymphatic structures. There is distinct analogy between lymphocytism with sudden death and relaxation and palsy of muscles due to myasthenia gravis.

DR. N. E. BRILL, New York: I think it worth while to give consideration to choking of the lymphatic spaces. We have in myasthenia gravis a condition of the muscles which prevents rapid deterioration. This is closely related to what we find existing in normal fatigue. If the normal muscle be stimulated and the products of metalbolism are prevented from being carried off, very quickly this state of fatigue sets in, so that further contractions are impossible.

Dr. Starr, in closing: I wish to protest against Dr. Bailey's supposition that this is a condition that may arise under any circumstances and that it does not present a typical assemblage of symptoms forming a disease. We have here a clinical syndrome that is perfectly characteristic and cannot be mistaken for anything else.

ACUTE BULBAR PALSY FOLLOWING IN THE WAKE OF MUMPS. A CONTRIBUTION TO THE LITERATURE OF POLIOMYELITIS.

DR. JOSEPH COLLINS AND DR. ROBERT C. ARMOUR, New York: A boy, 11 years old complained 8 days after the onset of a mild attack of mumps, of dizziness, headache and malaise. The next day he staggered on attempting to walk and had partial paralysis of the left face. He developed rapidly dyspnea and died on the third day of the illness. Section through the oblongata, pons and crura showed a severe inflammatory round cell infiltration most pronounced at the superior level of the olivary bodies diminishing in intensity in both directions from this level. The round cells appear similar to those seen in poliomyelitis. There are a few cells resembling polyblasts. The greater number of cells are lymphocytes. The ganglion cells show all stages of chromatolysis.

DISCUSSION.

DR. ISRAEL STRAUSS, New York: It seems to me that this case of Dr. Collins, interesting as it is, is simply a case of poliomyelitis coming on in an individual who happened to have had an infectious parotitis.

DR. B. SACHS, New York: Without wishing to criticize the interpretation of the case at all. I think it would be perfectly safe to speak of a case of this sort as a case of infectious polioencephalitis and leave the question as to whether it is really identical with a poliomyelitis unsettled for the present.

DR. N. E. BRILL, New York: The parotid glands are peculiarly involved in general septic conditions and it is possible that the inflammation of these parotid glands was the beginning of a general infectious process secondary perhaps to a middle ear disease inasmuch as Dr. Collins says that the tympanic cavity was filled with a serous effusion.

CEREBELLO-TEGMENTAL LESION FROM OCCLUSION OF BRANCHES OF THE SUPERIOR CEREBELLAR ARTERY.

DR. CHARLES K. MILLS, Philadelphia: In this paper I present a more complete record of a case published by me as a preliminary report on a new symptom-complex in the JOURNAL of Nervous and Mental Diseases, Vol. 39, No. 2, February, 1912. The paper embodies investigations into the literature of the organic basis of emotional expression, a study of the functions of certain tegmental tracts, histological investigations by means of serial sections and a study of the distribution of the superior and posterior inferior cerebellar arteries. The microscopical investigation was made by Dr. W. G. Spiller and the study of arterial distribution by Drs. S. D. Ludlum and E. M. Williams. My conclusions are mainly based upon his study of the literature of the subject and on the complete investigation of the particular case which forms the basis of the article. Other unreported cases are, however, included. The persisting symptom-complex in this case for four years from the time of the original attack until the death of the patient was ataxia in the left upper and the left lower extremity, complete right-sided deafness, loss of the senses of pain, extreme heat and extreme cold and impaired tactile discrimination, on the right half of the body, with preservation on both sides of light touch and the senses of deep pressure and of position, passive movement and stereognosis; the retention, everywhere of voluntary movement and complete paralysis of emotional expression in the right side of the face. The brain on close inspection of the naked eye showed a marked depression in the cerebellum above the dentatum, and this body as well as the tissues above it were much atrophied. The vessels on the upper surface of the left cerebellar lobe were much smaller than on the right. Many

of the branches of the superior cerebellar artery were occluded. These occlusions were especially those of the branches of the ventral part of the corpus dentatum and the adjacent part of the superior cerebellar peduncle. The cerebellar nuclei in the neighborhood of the left corpus dentatum were equally affected. At least the upper two-thirds of the left superior cerebellar peduncle was degenerated, as a consequence of which the right nucleus ruber was at least one-third smaller than the left, but it apparently contained a full number of the nerve cells. The left mesencephalic root of the fifth nerve and the left lateral lemniscus were much degenerated. The whole process was evidenly syphilitic as shown by much round cell infiltration in the pia. As the result of the study of the supply of the anterior superior and the posterior inferior cerebellar arteries it was found that the anterior superior supplies a considerable portion of the border of the pons and middle peduncle and the anterior lateral portion of the cerebellar cortex. The infiltration from stain extended into and included a portion of the superior cerebellar peduncle on its way from the dentate nucleus, and the anterior lateral portion of the dentatum itself. The black stain of the inferior cerebellar infiltrated an area of considerably less size. This included about the posterior one-third of the cortex of the cerebellar lobe and the vermis and the posterior and postero-medium portions of the dentate nucleus. In addition to the above supplies, many minute black points or dots were found throughout the lateral tegmentum in the most caudal portion of the pons, showing the possibility that this artery in addition to its supply to the oblongata also reaches forward to some of the pontine tracts in the region of the medium lemniscus. More lateral of this the supply seemed to be that of the anterior superior. After reviewing the hypophysis of von Bechterew, Lewandowsky and others, I submit my own views of the interior mechanism of emotional expression. These include the predication of an emotional motor zone, especially developed in the right frontal lobe, anterior to the precentral convolution, this being connected by way of the anterior capsule and lenticula with the nucleus rubber and the ventral pontile nuclei, the afferent portion of the mechanism being by way of the dorsal pontile nuclei, special tracts in the tegmentum to the thalamus, tracts from the thalamus to the parietal lobe and thence to the frontal emotive zone, reënforcement taking place for coördination and muscular tone from the cerebellum by way of the superior cerebellar peduncle. The histological study of the chief case of the paper affords some new light upon the afferent lemniscal tracts!

DISCUSSION.

DR. JAMES J. PUTNAM, Boston: I recently saw in consultation a case very much like the one reported. This condition is sufficiently rare to make it valuable to collect such cases. I have seen only two similar cases.

DR. THEODORE DILLER, Pittsburgh: I would like to refresh Dr. Mills' memory in regard to a girl, about 14 years of age, whom Dr. Mills and I examined two years ago. She had symptoms indicative of a brain tumor and had one symptom which was especially marked, that is, very distinct hemiataxia. An operation was done over the cerebellum on the side which seemed to be implicated and nothing was found, but the death of the patient some little time later showed a tumor of considerable size almost in the region which Dr. Mills has indicated as present in his case, namely, involving the dentate nucleus and superior peduncles. The red nucleus seemed to be entirely intact.

(*To be continued.*)

Book Review.

A Treatise on Pellagra. For the General Practitioner. By EDWARD JENNER WOOD, S.B., M.D. With 38 illustrations in the text. New York and London: D. Appleton and Company. 1912.

With the appearance, recognition, and study of pellagra in the United States, books on this important disease have been published in this country for the first time in English. The present volume is the fourth which has appeared within two years in this growing series by American authors, its predecessors being first Lavinder's and Babcock's translation of Marie's French monograph (reviewed in the issue of the JOURNAL for Feb. 23, 1911, Vol. clxiv, p. 274); second, Niles's treatise (reviewed in the issue of the JOURNAL for May 30, 1912, Vol. clxvi, p. 822); and third, that by Roberts (reviewed in the issue of the JOURNAL for Nov. 21, 1912, Vol. clxvii, p. 738). Of these, the first is chiefly historic and descriptive, and, though meritorious and useful, cannot properly be classed as an original English composition. The second advocates particularly the toxic theory of the etiology of pellagra; the third maintains the infective theory of its causation.

Dr. Wood also is a believer in the infectious etiology of pellagra. His work took its inception five years ago in a translation of Tuczek's "Anatomische und pathologische Studien über die Pellagra." In its present form it aims "to present an abstract of the literature on the subject for those unfamiliar with foreign languages." It is, however, in no sense a paraphrase or compilation, but an original production based not only on the work of others but on extensive personal study and experience. Approximately a third of the book is devoted to the history and etiologic theories of the disease; a half to its symptomatology, clinical description, and diagnosis; and a sixth to its prognosis, prophylaxis, and treatment. In all cases, the problems of pellagra are considered primarily from the point of view of the practitioner. The illustrations, though not many, are excellent and well chosen. The book is a worthy addition to the series in which American medicine is making its contribution to the study, explanation, and prevention of this ancient disease appearing in a new field.

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THE COMPLETE ERADICATION OF TYPHOID FEVER.

If there is any one disease which is completely and absolutely preventable, it would seem that typhoid fever should lay claim to being that disease. We know almost to a nicety the way and manner of its transmission. Time and again we have completely eradicated it from a given spot. The army manoeuvers on the Mexican border were as great an object lesson to sanitarians as to political disturbers. Given a certain area, the money, and the men, and typhoid fever can be entirely kept out. Once in a given area it can be surely vanquished. Yet, notwithstanding these known facts, typhoid fever is at the present time distributed throughout the civilized world.

The reason for this is to be found in the fact that no whole country, no large united political entity, has as yet set itself seriously to the task of complete eradication. Preventive work has been almost entirely local. In the United States it has been confined chiefly to the personnel of the Army and Navy and locally to cities and towns. The all important problem of getting rid of rural typhoid has not yet been seriously attacked. No real typhoid eradication can be accomplished until all the plague spots are attacked simultaneously and systematically. Until the possibility of the exogenous case is removed, the danger of the starting of an epidemic in perfectly typhoid-free communities will be ever present. Therefore the most important part of the problem consists in the elimination of the factors which transmit typhoid infection between urban districts and from rural to urban communities.

According to Dr. Allen W. Freeman, in a paper read before the International Congress of Hygiene and Demography at Washington last September, these transmission factors are chiefly as follows: From country to town—1, persons; carriers, temporary or permanent; persons in the incubative period of the disease, and persons actually sick with typhoid fever; 2, foods and drinks, including water, dairy products, garden truck, fruits, shell fish, and possibly other foods. From town to country or between rural communities—1, persons infected in the cities or towns and incoming carriers; 2, foods of various kinds; 3, night soil and manure carried out of cities for fertilizing purposes; 4, stream pollution; 5, railway trains.[1]

Although several of these factors are already controlled by efficient means, the neglect of others renders the complete banishment of the disease impossible. If a careful, comprehensive, detailed campaign against typhoid fever could be conducted by an efficient organization, national in scope, there is every reason to believe that its epidemic appearance could be entirely prevented. With every community thus freed from the danger of exogenous infection, the attack upon the occasional case arising within the city limits could be carried on with the assurance of quick success, and the reduction of the disease to almost the vanishing point throughout the nation confidently predicted.

[1] The Intercarriage of Typhoid Infection between Urban and Rural Communities. Allen W. Freeman, Assistant State Health Commissioner, Richmond, Virginia. Transactions of the International Congress on Hygiene and Demography, September, 1912.

THE GREATER HEALTHFULNESS OF RURAL DISTRICTS.

The sanitary advantages of country districts over cities are impressively set forth by Dr. Frederick L. Hoffman, the statistician of the Prudential Life Insurance Company.[1] It would seem that in the North Atlantic States (upon which Hoffman bases his observations) the only causes of death more common in the rural districts are typhoid, malaria, influenza, dysentery, apoplexy, paralysis, disease of the heart and peritonitis. Some of these are terminal affections, and result from a larger proportion of old people among the country population. The most serious difference is the higher mortality from influenza, "which is partly due to needless exposure." Dysenteries in the coun-

[1] Rural Health and Welfare. America's Land and Irrigation Exposition, November, 1912.

try are, perhaps, due to neglect. On the other hand, the diseases more rife in the cities are cancer, alcoholism, meningitis, bronchitis, broncho-pneumonia, lobar (and unqualified) pneumonia, diarrhea and enteritis, cirrhosis of the liver, appendicitis, Bright's disease and nephritis, and death from violence. Hoffman concludes that in the registration area of the United States (which excludes, however, most of the rural sections of the Western and Southern states) the mortality rate from all causes combined, and from practically all the important causes, is much less in the rural districts than in the cities.

The superior longevity and lesser disease liability of the agricultural class is convincingly set forth in the report (quoted by Hoffman) of the Registrar-General for England and Wales: The death rates are not only below the standard for all occupied and retired males; they are also generally below the rates among all males in the selected healthful districts (except among farmers and their laborers above sixty-five years). Within the main working period of life the comparative mortality figure for the agricultural class is 40 per cent. below the average for occupied and retired males; and the mortality from alcoholism and liver diseases, from phthisis and respiratory diseases is less than one-half, and from Bright's disease about one-half the standard. From all other causes except influenza (from which the mortality is normal), the death rates are also below the average.

MEDICAL NOTES.

A BRITISH CENTENARIAN.—Mrs. Mary Besant, who died on Nov. 25, 1912, at Clevedon, Somersetshire, England, is said to have been born at Walton-in-Gordano, in the same county, on Aug. 8, 1811, the date of her baptism being attested in the local parish register.

CARTWRIGHT LECTURES.—Professor Ludwig Aschoff, of the University of Freiberg in Breslau, Germany, has accepted an invitation to deliver the Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons, New York, between March 15 and 20, 1913. The exact date and subjects of the lectures will be announced later.

BRÉANT PRIZE.—The most important prize offered by the French Academy of Sciences is the Bréant prize of 100,000 francs for the discovery of a cure for Asiatic cholera. The Academy has already awarded from the income of this fund prizes of 2500 francs each to Dr. Carlos J. Finlay and Dr. Aristides Agramonte of Havana, Cuba, for their work in demonstrating the rôle of the *Stegomyia* mosquito in the transmission of yellow fever.

COCAINE HABIT IN PARIS.—Report from Paris on Dec. 28 describes the rapid growth of the cocaine habit among all classes of society in that city. The drug is distributed largely in cafés, where a surreptitious and illicit traffic in it is maintained. Some of the more wealthy *habitués* are alleged to pay as much as 40 francs a gram for cocaine, submitting to this extortion from dealers who threaten to expose them and cut off their supply. The police are said to be engaged in a vigorous effort to suppress such clandestine sales.

SMALLPOX IN THE SOUTH.—Report from Washington, D. C., on Dec. 27 states that a considerable outbreak of smallpox has recently occurred along the boundary line between West Virginia and Maryland. Dr. B. S. Warren, detailed from Washington to investigate the situation, is said to have reported 11 cases in the vicinity of Martinsburg, W. Va., 11 cases at Cumberland and one at Lonaconing, Md., and 8 cases at Piedmont, W. Va. In all places strict measures have been taken to suppress the infection, whose source of origin has not as yet been determined.

COMPARATIVE CASUALTIES FROM RAILROAD TRAUMA.—The annual report of the Interstate Commerce Commission, published at Washington, D. C., on Dec. 16, shows the total number of casualties from railroad accidents during the past year to be 180,123, of whom 169,538 were injured, and 10,580 killed, an increase of 189 killed and 19,379 injured over the previous year. Last year, in comparison, on the railroads of Germany, Austria, Russia, and France only 394 persons were killed and 2494 injured.

FOUR CENTENARIANS.—Miss Ellen Horgan, a New York shopgirl, who died of bronchitis in that city on Dec. 25, is alleged to have been born in 1808.

Charles Cauley, who died on Dec. 25, at Copper, Tex., is said to have been born in 1803 in Ireland. Until within two months he had been actively engaged in his work as a farmer.

Carsamus Paige, who died on Jan. 2 at Joliet, Ill., is said to have been born in 1807. From his boyhood he sold newspapers in the streets, and continued at his work until within a few days of his death.

Mrs. Elizabeth Thompson, a negress, who died recently at Paterson, N, J., is alleged to have been born in 1797. Her husband is said to have lived to the age of 109. She is survived by 21 of her 22 children, and by 50 elderly grandchildren.

COMPARATIVE RATES OF INFANT MORTALITY.—Statistics recently published at Washington, D. C., by the Children's Bureau, indicate that about 300,000 infants under one year of age die annually in the United States, corresponding to a rate of about 125 per 1000 born. The lowest known rate of infant mortality in a civilized country whose registration figures are reliable is 68 per 1000 in New Zealand. In New York City the rate is 160 per 1000.

BOSTON AND NEW ENGLAND.

BOSTON DISTRICT HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston District Society of the Massachusetts Homeopathic Medical Association, held in Boston last week, Dr. Stephen H. Blodgett was elected president; Dr. E. W. Smith, treasurer; Dr. William A. Ham, secretary; and Dr. Conrad Wesselhoeft, assistant secretary, for the ensuing year.

OPENING OF NEW MARLBOROUGH HOSPITAL.—The new Marlborough (Mass.) General Hospital, which was described in the issue of the JOURNAL for Dec. 19, was opened on Jan. 1 to receive patients.

TYPHOID FEVER IN SPENCER.—Report from Spencer, Mass., states that on Jan. 1 three new cases of typhoid fever were discovered in that town, making a total of twelve since the first of December. The source of this minor local epidemic has not as yet been definitely ascertained.

MEASLES IN LANCASTER.—Report from Lancaster, Mass., on Jan. 5, states that measles is at present epidemic in that town, where 82 cases have occurred since the beginning of the year.

UNCINARIASIS AT LEOMINSTER.—Report from Fitchburg, Mass., on Jan. 8, states that in the neighboring town of Leominster a case of uncinariasis has been recently discovered in the person of a young Italian girl, an immigrant who came to this country only six months ago.

TWO CENTENARIANS.—Mrs. Mary Nideau, who died on Dec. 19 in Hampden, near Bangor, Me., is said to have been born at St. Francis, Me., in April, 1808. She was thrice married, but had no surviving descendants. Her health was vigorous until shortly before her death.

Mrs. Mary Ann Peterson, who died on Dec. 29, at New London, Conn., is said to have been born in that city on Aug. 22, 1807.

REVERE DEATH-RATE.—The death-rate in Revere, Mass., in 1912, was only 9.58 per 1000 of population, the lowest in the history of the town. In 1910 the rate was 10.16.

BOSTON VITAL STATISTICS.—The death-rate in Boston for the first week of 1913 was 18.51 per 1000 of population, a relatively high figure. During the corresponding week of 1912 the rate was only 15.06. For the entire year of 1912 the death-rate was 16.2, including non-residents, and 14.2 exclusive of non-residents; as against 17.1 and 15.12, respectively, in 1911. The number of deaths from diphtheria, scarlet-fever, pulmonary tuberculosis, and typhoid fever in 1912 showed a marked decrease. The number of deaths from measles, however, was 104, as against only 74 in 1911. The number of births in 1912 was 18,034, as compared with 17,967 in 1911; but owing to the considerable growth of the city in population, the birth-rate for 1912 was only 25 per 1000. The death-rate of infants under one year of age was only 120 per 1000 births in 1912, and 125 per 1000 in 1911.

RECENT BEQUESTS IN MEDICAL CHARITY.—The will of the late Mrs. Thomas J. Allen, of Dorchester, who died on Dec. 11, was filed last week for probate. It contains bequests of $5000 each to the Massachusetts General Hospital, the Massachusetts Charitable Eye and Ear Infirmary, the Children's Hospital, Boston, the Home for Incurables, Dorchester, and the New England Hospital for Women and Children, Roxbury, and of $3000 to the Boston Dispensary.

The will of the late Martha H. Brooks, which was filed last week at Brookline, Mass., provides

that one-third of the residue of her estate shall be divided equally between the Massachusetts Charitable Eye and Ear Infirmary, the Boston Instructive District Nursing Association, and the Massachusetts Homeopathic Hospital.

The will of the late Rufus Larcom, of Beverly, Mass., contains a bequest of $500 to the Beverly Hospital.

The will of the late Miss Blanche Shimmin, of Boston, who died in this city on Dec. 22, contains among many public bequests, one of $500 to the Boston Instructive District Nursing Association.

The will of the late Joseph N. Smith of Lynn, Mass., who died in Boston on Dec. 20, was filed on Dec. 27 at the Salem (Mass.) Probate Court. Among many charitable bequests it contains legacies of $10,000 to the Lynn Hospital and $5000 each to the Home for Little Wanderers and the Home for Incurables, Boston.

NEW YORK.

ASSOCIATION FOR THE BLIND.—At the annual meeting of the New York Association for the Blind, the president, Dr. John H. Finley, president of the College of the City of New York, reported that the last year had witnessed great strides in the prevention of blindness and in the methods of caring for blind persons. As an illustration of the latter he mentioned that the Association had fitted ten men to tune pianos in the public schools. He spoke of the opening of the new summer home for the blind at Cornwall, on the Hudson, the gift of Mrs. Emma L. Hardy, as the greatest individual achievement of the society, and said that last summer nearly 150 persons of this class were enabled to take their vacations there.

DIPHTHERIA IN BROOKLYN.—There has been an unusual number of cases of diphtheria in Brooklyn this month. Up to December 18, 350 cases had been reported to the Health Department, and 30 deaths had occurred. The disease appears to have been most prevalent in the Eastern District of the borough, and three of the deaths were among children belonging to a single class in one of the public schools of that section.

REGISTRATION OF BIRTHS.—Health Commissioner Lederle has issued a circular to the physicians and midwives of the city in which he calls attention to the fact that the returns of births during the eleven months of this year have fallen considerably below the figures of the same period of last year, and expresses the opinion that this shortage is due almost entirely to the negligence of some physicians and midwives, who have disregarded the requirement of the law to file a certificate of birth within ten days of its occurrence, and who have been undeterred in their violation of this by the large number (312) of physicians and midwives who were fined during the year 1911. He then goes on to state that he has now decided to excuse all derelictions in this respect that have occurred this year, on condition that all returns of births which have not been filed during the year be sent in before January 1, 1913. On the other hand, he intends, on and after the first of January, 1913, to prosecute every violation of the law in regard to the reporting of births. Thus far in 1912, nearly 130,000 births have been reported in the city, and he hopes to have the strong co-operation of the medical profession in the efforts of the Health Department to obtain a full registration of births in the future.

FREE ANTITYPHOID INOCULATION.—After January 1, the City Health Department will be prepared to inoculate with antityphoid serum all persons desiring this procedure. This was determined upon at a meeting of the Board of Health on December 10 and announced to the public in Bulletin 132, dated December 18; in which it is stated that immunization against typhoid fever has now passed beyond the experimental stage and has become established as a prophylactic measure of proved efficiency. Especially will it be urged for the members of every family in which a case of typhoid occurs. A circular of information regarding the immunization has been issued and a copy has been or will be sent to every physician in the city.

ILLEGAL MANUFACTURE OF OLEOMARGARINE.—An alleged "moonshine" oleomargarine plant, in an isolated farmhouse near the hamlet of Latham, ten miles from Albany, was raided on December 20, by agents of the Federal Government and the State Department of Agriculture. 1,000 pounds of white oleomargarine and over 700 pounds of the article colored in imitation of butter were seized, and James Upritchard, the man in charge, and his assistant arrested. Upritchard, it is stated, has confessed to have been engaged for the past six months in manufactur-

ing colored oleomargarine, which was disposed of in Schenectady and Albany as dairy butter.

ANTI-TUBERCULOSIS WORK.—That New York, in company with other States, is actively engaged in combating tuberculosis is shown by the fact that, in addition to the work in this direction being carried on by the State at large, at least twenty-six counties have now established, or taken steps to provide, special hospitals for the care of those suffering from the disease. Recently the Clinton County board of supervisors voted unanimously to construct a tuberculosis hospital and appointed a committee to procure a site; a fact which is particularly encouraging for the reason that Clinton is a rural country, rather sparsely populated, and with an assessed valuation of but $9,753,733. The Montgomery County supervisors have let the contracts for such a hospital in the town of Amsterdam, on a site purchased at a cost of $9,000, and Oswego and Otsego are among the other counties which have lately arranged for the construction of hospitals.

MEDICO-LEGAL SOCIETY.—At the annual meeting of the Medico-Legal Society, held on December 20, a review of the Rice murder case was a feature of the exercises, and the secretary, Clark Bell, narrated the efforts of the organization to secure the release of Albert T. Patrick, who the facts collected by it showed to have been convicted on faulty evidence. Dr. Thomas D. Crothers of Hartford, Conn., was re-elected president, and Clark Bell of New York, recording secretary of the society.

Current Literature.

MEDICAL RECORD.

DECEMBER 28, 1912.

1. JONES, S. F. *Osteitis Deformans (Paget's Disease). Report of One Case with Radiographs.*
2. GILMOUR, A. J. *Report of a Case of Lupus Erythematosus Disseminatus.*
3. PEDERSEN, V. C. *Adenomatous Hyperplasia of the Prostate Gland. Operation and Possibly Consequent Chronic Suppurative Nephritis with Calculi in Kidney, Ureters and Bladder.*
4. *WALKER, H. D. *The Production of Malignant Tumors from the Parasites of the Earthworm.*
5. FOWLER, R. H. *Cervical Adenitis in Children.*
6. BALDWIN, J. F. *Artificial Vagina by Intestinal Transplantation.*

4. Walker believes that he has found the origin and cause of cancer, the manner of its production, and the method by which it may be prevented. He has produced tumors in animals by feeding or injecting them with parasites from earthworms. If there were no earthworms, there would be no cancer, he says. He claims that the parasites pass out through the orifices in the skin of the worm on to the leaf of a cabbage, celery or lettuce plant, which may be ingested and thus infect a human being. The writer has cut up earthworms in a little water and succeeded in demonstrating amoeboid cancer organisms in the filtrate. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 28, 1912.

1. RUGGLES, E. W. *Salvarsan versus Mercury.*
2. NEWMAYER, S. W. *Municipal Supervision of Maternity.*
3. WALSH, J. J. *Women in the Medical World.*
4. STUCKY, J. A. *Progressive Deafness.*
5. WATERS, B. H. *Adequate Hospital Control.*
6. GOMPERTZ, L. M. *Confidential Communications between Patient and Physician.*
7. BRADNER, F. W. *A Ruptured Ectopic Gestation Sac.*
8. GREENBERG, G. *A New Operating Urethroscope.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 28, 1912.

1. *CABOT, R. C. *Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies.*
2. STEVENS, A. R. *Pathologic Lesions of the Kidney Associated with Double Ureters. Report of a Case of Hypernephroma.*
3. *SMITH, D. T. *An Overlooked Function of Bartholin's and Cowper's Glands.*
4. PARKE, T. D., AND EDMONDSON, J. H. *Effect on Later Development of Severe and Prolonged Illness in Infancy.*
5. DENNETT, R. H. *The Caloric Requirements of Bottle-Fed Infants.*
6. WEISENBERG, T. H. *Moving Picture Illustrations in Medicine; with Special Reference to Nervous and Mental Diseases.*
7. *LANGHORST, H. F. *Possible Transmission of Poliomyelitis Through the Dog.*
8. SIMPSON, W. L. *A New Tonsil-Snare.*
9. LAYMAN, D. W. *A Compressed-Air Ointment Applicator and Distributor.*
10. SLUDER, G. *An Adenoid Cure.*

1. Cabot's paper on the diagnostic pitfalls identified in the study of three thousand autopsies is of very practical value. The article is concise and readably presented in short, clear-cut statements. Among the frequent and well recognized pitfalls he recognizes the following: Acute gastritis is a rare disease in adults; appendicitis or gall stones is the correct diagnosis in most cases. Chronic indigestion is usually a mistaken diagnosis, the actual condition being peptic ulcer pulmonary tuberculosis, constipation or cancer of the colon. Bronchitis usually proves to be phthisis, bronchiectasis or bronchopneumonia. Asthenia after middle life is usually symptomatic of cardiac or renal disease. Unresolved pneumonia often turns out to be interlobar empyema. Malaria is often given as a diagnosis in cases of phthisis, hepatic syphilis, hepatic abscess, and urinary infections. Rheumatism is the most dangerous of all diagnoses to make; it may prove at autopsy to be aortic aneurysm, cancer of the pleura, tabes, osteomyelitis, spondylitis deformans, bone tuberculosis, syphilitic periostitis, lead poisoning, morphine habit, alcoholic neuritis, or gonorrheal infection. Cystitis is practically always a symptom and not a disease; secondary to stricture, prostate, or renal tuberculosis. The failures represent the success and failure ratio of certain methods rather than of certain men. Acute uremia was never found to be a correct diagnosis; other well recognized causes of death were found at autopsy.

3. Smith believes that a second function of Bartholin's and Cowper's glands is, the secretion of a fresh amount of mucus to replace that washed away by micturition and thus to protect the mucous membrane.

7. Langhorst believes that dogs, especially in country districts, are frequent carriers of the virus, and instances two cases in which this seems true. [E. H. R.]

JANUARY 4, 1913.

1. DEAVER, J. B. *Pancreatic Lymphangitis and Chronic Pancreatitis.*
2. LEAVITT, F. E. *Moderate Degrees of Pelvic Contraction and Their Obstetric Problems.*
3. NESBITT, C. T. *The Control of Typhoid Infection.*
4. MONTGOMERY, D. W. *Unusual Exposure to Light Followed by Seborrheic Keratosis.*
5. JONES, H. A. *The Treatment of Dysentery Cases in State Institutions.*
6. *RANDALL, A. *The Etiology of Unilateral Renal Hematuria.*
7. *CUNNINGHAM, J. H. *The Influence of the Operation of Resection of the Kidney on the Function of the Organ. A Report of Experimental Work on Rabbits.*
8. *CABOT, H. *The Diagnosis and Indications for Operation in Early Hydronephrosis.*
9. DRAPER, J. W., AND BRAASCH, W. F. *The Function of the Ureterovesical Valve. An Experimental Study of the Feasibility of Ureteral Meatotomy in Human Beings.*
10. EISENSTAEDT, J. S. *Three Cases of Family Dystrophy of the Hair and Nails.*
11. PARKES, C. H. *A Simple Method of Introducing the Purse-String Suture for Covering the Stump of the Appendix.*
12. RANDOLPH, B. M. *Sarcoma of Left Frontal Lobe of Brain Without Definite Symptoms Until Shortly Before Death.*
13. ZIEGLER, C. E. *The Elimination of the Midwife.*
14. DEEKS, W. E. *Treatment of Dysentery Due to Infection with Entamoeba Histolytica.*
15. LAVINDER, C. H. *A Note on the Cultivation of Malarial Plasmodia After the Method of Bass and Jones.*
16. BURR, C. W. *Paralysis Agitans in Negroes.*
17. TRAVER, A. H. *Hemophilia Treated by Human Blood Serum.*
18. BRADLEY, H. C., AND BUNTA, E. *The Ruhemann Uricometer for Uric Acid Estimation.*

6. Randall believes that in a majority of cases of unilateral hematuria, nephritis with its concomitant congestion plays the leading rôle. In other cases the bleeding is from varicosities in the pelvis, secondary to congestion resulting from extrinsic conditions. In whatever case, there is renal congestion, and this is best relieved by nephrotomy.

7. Cunningham has found experimentally on rabbits that, following the operation of kidney resection and closing of the kidney wound entirely there results a temporary arrest of the kidney function; that performing the same operation and draining the kidney pelvis, not closing the kidney wound entirely, does not cause a suppression of kidney function in the same degree. Rubber tube drainage is freer than by gauze.

8. Cabot's paper on hydronephrosis is better read than reviewed. It is well illustrated by cases in point, and is of particular value in that it deals with the symptoms and signs at the very onset of the disease. [E. H. R.]

THE LANCET.

DECEMBER 14, 1912.

1. *WRIGHT, T. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. M. *Observations on the Pharmacotherapy of Pneumococcus Infections. (To be concluded.)*
2. *LAKE, R. *Aural Vertigo (Non-Suppurative); a Clinical and Therapeutic Study.*
3. *LILLINGSTON, C. *Further Observations on the Pneumothorax Treatment of Phthisis.*
4. LUCAS, C. *A Case of Complete Eradication of Extensive Recurrent Cancer Affecting Both Breasts and Axillae; Death Fifteen Years Later from Heart Disease and Dropsy, at the Age of Eighty-two.*
5. ALLES, E. C. *Mucocele of the Anterior Ethmoidal Cells.*
6. MACKINTOSH, A. H. G. *A Case of Acute Nasal Catarrh, Due to a Gram-Negative Bacillus Resembling the Distemper Group of Organisms.*
7. WHITFIELD, A. *A Method of Rapidly Exterminating Pediculi Capitis.*

1. This is a detailed scientific and statistical study of the therapy of pneumococcus infections, which deals largely with opsonic determination and other strictly laboratory methods.

2. Chronic progressive middle ear deafness and arteriosclerosis are the most frequent causes of aural vertigo. Operative treatment is justified and is usually successful in these cases; treatment by drugs can give great relief in some instances.

3. Lillington reports 18 patients with advanced or moderately advanced phthisis treated with artificial pneumothorax for periods ranging from six months to three and one-half years. In 13 cases the disease is arrested or undergoing arrest. [J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 14, 1912.

1. *SIMON, R. M. *A Post-Graduate Lecture on Cardiolysis.*
2. *ROSS, E. H. *An Intracellular Parasite Developing into Spirochaetes.*
3. *JENNINGS, E. *The Parasites Recently Found in Syphilis.*
4. *MOOLGAVKAR, S. R. *On Certain Bodies Found in Syphilitic Lesions Demonstrated by the Jelly Method.*
5. HENRY, H. *The "Infective Granule" as the Initial Phase in the Life-History of a Haemogregarine.*
6. KINGHORN, A., AND YORKE, W. *On the Influence of Meteorological Conditions on the Development of Trypanosoma Rhodesiense in Glossina Morsitans.*
7. HOBHOUSE, E. *Salvarsan in Pernicious Anemia.*

REPORT TO THE SCIENCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

8. DOUGLAS, J. S. C. *The Cytology of the Blood in Passive Immunity.*

1. Simon gives the details of a patient on whom he performed cardiolysis with marked benefit. In this case there was no organic valvular disease, but adhesions between heart and pericardium, and pericardium and pleura. He discusses the subject of cardiolysis in general, reports the work of others, and considers those cases in which this operation has proved to be of benefit.

2. Ross describes an intracellular parasite of guinea-pigs developing into spirochaetes, shown by the jelly method of *in vitro* staining. This discovery led him to investigate syphilitic sores and ulcers in humans, 143 cases in all, and in every one he has demonstrated this same organism. He discusses the history of the parasite of syphilis, the technic of the jelly method, and its value as a means of diagnosis.

3, 4. These are short articles describing the same organism and the methods of detecting it as given above. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

DECEMBER, 1912.

1. *HAMILTON, A. F. *Surgery at the David Sassoon Hospital, Poona.*
2. ROGERS, L. *The Present Position of the Permanganate Treatment of Snake-Bite.*
3. *STEICHEN, A. *The Radio-Activity of Some Wells and Thermal Springs in the Bombay Presidency and in the Baroda.*
4. FRASER, G. C. *The Influence of the Monsoon on the Incidence of Eclampsia.*
5. KHAN, M. H. *The Diagnosis of Sand-fly Fever and Its Differentiation from Malaria.*
6. JUKES, A. M. *Preliminary Notes on Some Cases of Spirillar Fever in the Darjeeling District.*
7. LOCK, H. *A Case of Conservative Surgery.*
8. KNOWLES, R. *A Case of Plague—Abdominal Type.*
9. PHIPSON, E. S. *A Case of Enteric Fever in a Sepoy, Ending Fatally on the 77th Day.*
10. NAPIER, A. H. *A Case of Cerebro-Spinal Meningitis.*

1. Hamilton tabulates the statistics of 1048 major operations illustrating comprehensively the surgery of the Deccan.

3. Steichen presents analyses of the radio-activity of the waters of thermal springs from nine regions in southern India. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 47. NOVEMBER 19, 1912.

1. *PERTHES, G. *Conduction-anesthesia by aid of Electric Stimulation.*
2. *WILMS. *Results of Perineal Prostatectomy by My Method with Lateral Incision.*
3. WARBURG, O. *Studies of Oxydation in Cells.*
4. MORO, E. *The Neutral-red Reaction of Milk.*
5. HOFFMANN, M. *Disease of the Optic Nerves in Diabetics.*
6. *LANGER, H. *Protective Effect of Repeated Doses of Water by Mouth against Anaphylaxis.*
7. FISCHER, H. *Simple Spectroscopic Detection of Hemibilirubin in Pathological Urine.*
8. z. VERTH, M. *Fundamentals of General Naval Surgery.*
9. v. LINDEN. *Further Test of Chemotherapy for Tuberculosis.*
10. HERXHEIMER, K. *Cure of a Case of Sarcoma of the Skin by Means of Thorium-x.*
11. LEWIN, L. *A Method of Artificial Breathing for Those Apparently Dead or Asphyxiated.*
12. DREYFUS, G. L. *Methods of Examining Cerebro-Spinal Fluids in Syphilis.*
13. ZUCKERKANDL, O. *Shaggy Tumors of the Bladder Obstructing the Outflow of Urine.*

1. The writer describes a method of localizing the nerve to be anesthetized by means of a very mild electric current passed through the canula when in place for injection of the anesthetic. The electric current will cause twitching of muscles only when the canula comes directly in contact with the nerve itself, and the amount used is too mild to produce pain. Hence the method is a help toward precision in employment of the anesthetic.

2. Wilms reports final results on 31 cases of prostatectomy by his method with lateral perineal incision. He claims the following advantages for the method: That the functional results as to micturition are excellent; that the sexual function is not disturbed; and that after-care is simplified.

6. The experiments of Langer in the production of anaphylaxis in guinea-pigs and its treatment by repeated small injections of salt solution are of interest because those that received the salt recovered more often than did those not receiving it. The writer advocates further trial of this procedure. He injected the salt by mouth in the period of developing hypersensitization. [G. C. S.]

No. 48. NOVEMBER 26, 1912.

1. *WEIDENREICH, F. *The Thymus of the Adult As a Source of Granulated and Ungranulated Leucocytes.*
2. *SCHRIDDE, H. *Diagnosis of Status Thymo-lymphaticus.*
3. *HENCK, W. *Treatment of Skin Diseases with Human Serum.*
4. EMMERICH, R. *Rational Treatment of Asiatic Cholera.*
5. JACOB, L. *A Contribution on Paratyphoid.*
6. ZAHN, F. *Workman's Insurance in Germany: Its Social-hygienic and Social-political Significance.*
7. NEUMAYER, V. L. *Attempt at Improving the Effect of Salvarsan.*
8. SANDROCK, W. *A Fatal Case of Severe Electric Burn.*
9. SCHAAL. *Enterospasmus Verminosus.*
10. KOEPPE. *A Swab for the Ear.*
11. SCHUBART. *Seven Cases of Psychic Disorder Cured After Gynecological Operations.*

1. Weidenreich brings forward new observations on the thymus gland which seem to show that its cortex is a source of leucocytes of various kinds. Not alone lymphocytes of the small type, but neutrophytic leucocytes and eosinophiles originate there in considerable numbers. These differentiated types were observed in process of division as well as in every stage of development from the simpler forms. These observations strike a blow at the generally accepted belief that granulated leucocytes can originate only in the marrow, and the writer further states that they can be produced from typical small lymphocytes, as well as from the larger variety.

2. As a clinical sign of status lymphaticus, the writer brings forward his observation that the skin of the tongue is thickened in all cases. Enlargement of lymphatic glands and of tonsils is not always present, and although the blood may show a lymphocytosis, little is known of it. The observations are based on autopsy material.

3. Henck reports encouraging results from the use of normal human serum injected intravenously for certain obstinate skin affections, *e.g.* chronic urticaria, *Strophulus infantum* and *Pruritus senilis.* [G. C. S.]

No. 49. DECEMBER 3, 1912.

1. AUTENRIETH, W., AND FUNK, A. *Calorimetric Tests: The Renal Test of Rowntree and Geraghty; Estimation of Rhodan in the Saliva and of Iodin in the Urine.* (*To be concluded.*)
2. ISELIN, H. *Injury to the Skin by Röntgen-light After Deep Treatments. Cumulative Effect.* (*To be concluded.*)
3. FLÖRDSEN, H. *Contribution on Direct Transfusion of Blood.*
4. *ZABEL, B. *Diagnosis of Bronchial Glands.*
5. HUBER, J. C. *Irritating Effects Observed in the Living Human Intestines of Asians.*
6. KOLB, K. *Intestinal Symptoms in Basedow's Disease and Diagnostic Difficulties.*
7. DEPPE, L. *Spontaneous Cure of Appendicitis.*
8. DESSAUER, F., AND KÜPFERLE, L. *The Motion of the Heart Shown by Röntgen-rays.*
9. SCHOTTELIUS, M. *Tablets of Chlorcresol: "Trotan."*
10. KALL, K. *Treatment of Scabies with Salicyl-nicotin-soap Tar.*
11. PICK, J. *Statistical Contribution on the Etiology, Pathology and Treatment of Dysbosia Angiosclerotica.*

12. BAMBERGER. *Complete Gangrene of the Breast Associated with Puerperal Sepsis.*
13. STERNBERG, W. *Dietetic Treatment in Cooking.*

4. Zabel reports the results of his experience in treating a variety of signs and symptoms which may be found with enlargement of the bronchial glands. His work was done on children of a variety of ages and also on adults. The work cannot be summarized satisfactorily in a few words, but he emphasizes the point that auscultation of the spine by d'Espine's method proved more reliable than any other sign. He puts next in importance Koranze's percussion of the spine. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 51. DECEMBER 19, 1912.

1. *JAKLIN. *Germ Prophylaxis in Surgery.*
2. JÜRGENS, A. *The Skleroma Question in Russia.*
3. KOLLERT, V. *The Scaphoid Shoulder-Blade and Its Clinical Significance in the Prognosis of Duration of Life.*
4. KÜHNELT, E. *A New Method for the Administration of Larger Emanation Doses.*
5. ZOGRAFIDES, A. *Contribution to the Treatment of External Furunculous Otitis.*
6. DONATH, J. *The Nucleic Acid Treatment of Progressive Paralysis.*
7. WILMS, *The Publications of Zuckerkandl on Wilms' Prostatectomy.*

1. Jaklin believes that the germs ordinarily existing in the outer world possess as a rule no virulence, and are, therefore, not dangerous to wounds. Only by the passage of germs through a septic wound or organism, do they become virulent. The ideal and simplest prophylaxis against infection is complete separation between septic and aseptic surgery. [R. M. G.]

Correspondence.

THE ORIGIN OF LIFE: A REJOINDER.

Cambridge, Mass., Dec. 13, 1912.

Mr. Editor: I am moved by certain practical considerations to join most heartily in Dr. Putnam's earnest and timely protest, in your issue of November 14, against the materialistic spirit so forcibly exhibited in Dr. Schaefer' presidential address, delivered recently at Dundee. Yet, sincere as is my concurrence in his defence of a vitalistic principle, I feel that his inference from the premise of its existence should not be accepted without certain mental reservations.

Prof. Schaefer's brilliant exposition of the attitude of science toward the origin, nature and maintenance of life may well be taken as a powerful effort, based upon recent experimentation, to stem the tide of reaction now running so strongly against the materialistic conception of the universe so long dominating all scientific thought. But since this reaction is tending to emancipate the present generation from the hard and narrowing positivist dogmas, we may take heart to wait patiently until the physiological chemist shall have produced the homunculus, which, though not his immediate aim, is clearly his ultimate hope.

While watching closely the further developments of laboratory work and rejoicing in the successes of its adepts, we must keep our minds, as Dr. Putnam urges, in a critical attitude towards their inferences, but not without that self-criticism which shall prevent our being carried too fast and too far by the wave of idealism.

As sober-minded doctors we may yet be deeply interested in the theory of an all-pervading and creative energy according to Ostwald, Hers and others, and in the higher physics as expounded by Gustave Le Bon in his "Evolution of Matter"; or we may even accept mind as something separable from the molecular forces of our brain cells. But as practical men we should still keep our feet on the earth and guard our heads from the mists of transcendentalism. There is far too much at stake if we declare "the investigation of nature 'to be a journey of discovery into our own thoughts and feelings,' or that physics can come completely to its rights only through metaphysics." With all possible concessions to the eternal values offered by the idealistic side of world wisdom, and fully conscious "that we do not understand the world we live in by simply decomposing it into its physical and psychical elements" and, I may add, by synthetically re-distributing these elements, we are hardly warranted, as yet, in seeking explanations of natural phenomena in purely speculative philosophy.

If physics can come to its own *only* through metaphysics how much more should this be predicated of the biological sciences, of which "physic" claims to be one and, as we should hold, the foremost, in its practical application. At the bottom of them all lies the great unknown *bios* through which we are endeavoring to penetrate, by the methods of science, first of all, and *then* with the aid of hypothesis. If we put this latter first, or give it undue weight while pursuing experimental research and seeking greater exactness by even more accurate observation, shall we not be again opening wide that door through which have entered into medicine from the beginning, all manner of hypothetical systems invariably leading to both mysticism and dogmatism? The history of medicine warns us of the curse that would inevitably follow.

Again, however freely we may admit that "the 'laws' of nature, discovered by us, must owe their existence and value for us to the action and existence of our minds," is it not going too far on the journey of discovery through our thoughts and feelings to declare them to be "expressions of, and existing for us *only* on the background of our minds"? Without our minds they would remain undiscovered, but nevertheless continue to exist as uniformities in nature. For the present we must still look upon them as objects outside of ourselves, as sequences of phenomena observable by us, rather than evolved out of our inner consciousness. Without what we have come to call "laws" the accumulation of facts, however great and exact, of course, would not be science, but the laws must rest on the facts themselves, not be super-imposed upon them by our minds.

There is little danger that the great mass of the profession will lose much sleep from pondering these somewhat abstruse questions, although it was said—I do not remember by which of the ancients—that the physician who is also a philosopher is godlike; and it is certain that Dr. Putnam's protest was prompted by that divine spark within us all, unless quenched by hereditary or acquired depravity, from which all wisdom springs. Nevertheless, let us beware

Lest that divine philosophy
Shall push beyond its mark and be
Procuress to the lords of hell.

As yet our science must be securely founded on an empirical and inductive basis while our aspirations should be dictated by idealism.

WALTER WESSELHOEFT, M.D.

PHYSICS AND METAPHYSICS: A FURTHER REJOINDER.

Boston, December 28, 1912.

Mr. Editor: I have taken great pleasure in reading the manuscript of Dr. Walter Wesselhoeft's courteous and liberal response to my letter entitled "The Origin of Life,"—the more so that the writer's reference to points of agreement in certain essential respects leads me to believe that we should eventually come to agree in all respects. Nevertheless, there are likewise differences on which I wish to comment, since the whole matter appears to me not of trivial, but

of fundamental interest. These differences relate especially, as Dr. Wesselhoeft says at once, to the question of the practical, or as Dr. James would say, "pragmatic" bearings of the views at stake.

The fear is expressed that a renewal of the emphasis on metaphysis (so long, and, as I think, so unjustly, a despised science) might plunge us back into the wordy discussions of mediaeval times, to the detriment of our scientific attitude, which has been won at such high cost of time and effort. If I believed for a moment that this would be the case I should heartily sympathize with Dr. Wesselhoeft's objections; for I, like him, am enlisted, heart and soul, in the cause of exact science. But I decline to believe that because there have been days, even as late as the early part of the last century, when a weak-kneed science was willing to seek aid of one or an other sort from a somewhat sentimental philosophical tendency ("philosophy of nature," etc), therefore this danger threatens us to-day.

Must we, then, shrink from the very shadow of this danger, so far as to give our adherence to a fallacious theory of the universe, or, on the other hand, so far as to plume ourselves, like the Titans, on being so sturdily 'self-made', so secure in our discovery of our earthly genesis, content with the knowledge that comes through our well furnished laboratories of science, that we can afford to neglect all other sources of information about our origin and destiny, even those through which alone we can hope to raise ethics above the level of a pure arrangement of convenience, and to secure a scientific standing for religions? I know that Dr. Wesselhoeft does not echo these sentiments, but there is abundant reason to think that something like them is widely felt among us, and they are the logical outcome of the movement that culminated in the congress of the Monists, in Germany, a year and a half ago, in whose councils the able and high-minded Professor Ostwald, to whom Dr. Wesselhoeft refers, together with our own justly admired Professor Loeb, were prominent. Professor Karl Pearson, is likewise to be counted on that side, for he, too, announces boldly in his Grammar of Science, which has long been accepted as a peculiarly fair and uncontrovertible statement of the attitude and just claims of natural science, that conclusions as to the ultimate nature of the universe and mind must be made, if at all, not through logic and philosophy but through investigations conducted in accordance with the laws of chemistry and physics.

It does not alter the situation that Professor Ostwald, in his well-known book on Philosophy of Natural Processes, as well as in his Ingersoll Lecture on Immortality, substitutes *energies* for *atoms*, and thus admits or asserts an immaterial basis for phenomena usually described in terms of matter. This represents, indeed, a conscientious attempt to bring mental phenomena into the field with physical phenomena without doing injustice to the former. But this attempt is made, not on the basis of an acceptance of the doctrine which I hold and which I suspect Dr. Wesselhoeft holds, in common with Professor Royce and great numbers of other able thinkers, namely, that the key to the final secrets of the physical world is to be discovered only through the study of the mental world, but, on the contrary, on the reverse basis. And the fact remains that he, [like Loeb—who derives tropisms from simple chemical processes, and consciousness from tropisms] practically denies that mind, or, in broader terms, the self-active energy of which 'mind' is the highest expression—or self-renewing energy which obeys laws broader than those of physics,—lies at the foundation of the universe. If this conclusion were really to be accepted, the bloom of life for many of us would be lost, and I, for one, am entirely ready at any time, to break a lance in favor of the opposite belief.

Dr. Wesselhoeft points at the real storm-center of this controversy in criticizing as vague and practically unmeaning, my proposition that "physics can come completely to its rights only through metaphysics." The physical laws he says, "without our minds (they) would remain undiscovered, but nevertheless continue to exist as uniformities in nature." Of course, in one sense this is true; but not in the usually accepted sense,—not in the sense, namely, which Kant had in mind when he laid down his doctrine of the "Ding an sich" as independent of its conscious recognition, a doctrine fully refuted, later, it would seem, by Hegel. Dr. Wesselhoeft seems to be of the same mind with Kant when he speaks of our discovering the laws of nature, which he says, must have been previously in existence, and only waiting for us to find them. But is this true? If the laws of nature were really already made, and simply waiting for us to find them, then these laws must, of course, be taken as an expression of the fundamental nature of the universe. But if that were so we should have to believe in a universe [of mental as well as of physical aspects] all parts of which are to be assumed as bound together in the same absolute sense that the different physical forces are assumed to be bound together by the law of the conservation of energy. In such a universe, no growth in a creative sense, could possibly occur and a 'belief' in it would be a delusion and a snare. As much energy as there is in the world there would always have been. For, by the very definition of this law, as no energy can escape so none can be called into existence. The world would be like a kaleidoscope, in which changes appear to occur but are really brought about only through shuffling around the same old elements. The laws of physics and chemistry, and of a biology built on chemistry and physics, are laws of absolute relativity, for on absolute relativity natural science rests its claim to recognition. Iron chains are substituted for free will and if we try to get rid of the vitalistic horror of one such chain we can do so only by the subterfuge of adding a million more, which leaves us really no better off. If we try to deal with [or 'get outside' of] the problem of space and time, we must, if we would be logical, agree to do this not by inquiring into their *nature* but by wearily adding new portions of space and time, in the vain hope that at last we may reach their limits.

If we would escape from this sort of relativity which, as I have said, it is the glory of natural science to have established on a firm footing, we can do so only by admitting the doctrine that the processes of the universe are processes whose very nature it is to be self-renewing or self-active, or, if one will, "vital." In other words, we must admit that the ultimate type of world-process has to be sought not in mechanical phenomena but in the phenomena of which the workings of the mind and will afford the best example. We regard ourselves as 'persons,' but unless we are willing to agree that the rest of the universe is not personal at all but is a mechanical arrangement containing just so much energy, coming no one knows whence, no part of which can ever die and no part ever be born, we must believe that it is, to all intents and purposes, wholly personal. For no scientific man can really accept a dualistic system [although it is equally true that we must for convenience sake continue to use dualistic terms] and the Monistic Congress in Berlin had the merit that it endorsed a monism even though a materialistic one.

It will, of course, be urged that this claim of a personalistic universe represents an absurd 'hypothesis',—the attempt to escape from one dilemma by substituting another in its place. I cannot give, in this short space, the refutation of this statement, nor can I state the tenets of the systems of 'constructive idealism' which show in what sense the word 'personalistic' is to be taken. Any one who seriously wishes to inform himself on this subject can do so by consulting such books as the late Dr. W. T. Harris' "Logic of Hegel," or the late Professor Bowne's admirable book on "Personalism," or McTaggart's "Studies in Hegelian Cosmology," or Professor Royce's "The World and the Individual." These books show that metaphysics, instead of being "Procuress to the

Lords of Hell," or a hypothesis in any objectionable sense, is a true 'science' to a degree that few persons appreciate, and with claims to exactness, which, if of a different sort from those made for chemistry and physics, are at bottom more sound, because they are based on a close study of the nature of the thinking processes themselves, without which processes no conclusions can be arrived at of any sort. The fact is that the attempt to build a universe on the lines of natural science, that is, to admit nothing as real and valid but the things of which, in ordinary parlance, our senses or our physical measurements give us evidence, yet which we assume to have been logically antecedent to every form of vital or mental reality, is an utterly illogical procedure. It is an attempt to set up golden calves, and tin images of the gods, and then worship them, as primitive peoples have done since time began, *as if they were* gods.

What I meant by saying that physics can come to its right only through metaphysics, is that no science can be truly itself unless it is willing to limit itself to its proper place, and to recognise its true relation to other sciences. The frog burst because he tried to be the ox; and so the law of the conservation of energy is bound to go to pieces the moment that those who framed or who uphold it, in obedience to certain definite and limited needs, cease to recognize that it was made by man and for man's convenience, and that it does not expresse a big enough principle to account either for the will and the ideals and the vital energy of its human creator, nor for his obligations to the vital principle in him which is bigger than he, and which relates him, as a responsible, self-active person, to the self-active principle of personality which pervades the universe and without which the universe would be unthinkable, and if unthinkable, unendurable. JAMES J. PUTNAM, M.D.

Miscellany.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY: Medical Section meeting at the Boston Medical Library on Wednesday, January 22, 1913, at 8.15 P. M.

1. "Clinical Studies of Acidity of the Urine with Remarks on Fisher's Theory of Nephritis," by Dr. W. W. Palmer.

2. "Measured Feeding for Older Children"; (with an exhibit of specimens), by Dr. Wm. R. P. Emerson.

Discussions by Drs. J. L. Morse, E. E. Locke, L. J. Henderson, and L. H. Newburg.

GEO. C. SHATTUCK, *Secretary.*
205 Beacon Street.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The third regular meeting of the Essex South District Medical Society will be held at the Essex House, Salem, January 16, 1913, at 7 P. M.

Dr. John T. Bottomley, of Boston, who was unable to attend the previous meeting as arranged, will be the guest of the evening and will talk on the "Significance of Jaundice." DR. H. E. SEARS, *Pres.*
DR. H. P. BENNETT, *Sec'y.*

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.
The annual meeting of the New England Hospital Medical Society will be held at Hotel Vendome, Jan. 16, at 6 P. M. There will be a dinner served at 6.30, followed by toasts.

Election of officers.

MARGARET L. NOYES, *Secretary.*

RECENT DEATHS.

DR. GEORGE LOUIS FARRELL, Mayor of Malden, Mass., and a Fellow of The Massachusetts Medical Society, died of pneumonia at his home on Jan. 1, 1913, aged 46 years. He received the degree of M.D. in 1895 from the Jefferson Medical School, Philadelphia.

DR. WILLIAM E. GREENE, who died on Jan. 5 at Little Rock, Ark., was born in 1844. He was a former president of the American Institute of Homeopathy and of the Southern Homeopathic Association.

DR. WILLIAM WARNER HOPPIN, who died on Jan. 3 in New York City, was born at Providence, R. I., in 1838. He graduated from Brown University in 1861, and began the study of medicine at the New York College of Physicians and Surgeons from which he received the degree of M.D. in 1864. During this period he served for a time in the Union Army as an assistant-surgeon. At the close of the Civil War, he entered the Columbia Law School, from which he graduated in 1869, and immediately began the practice of law, which he thereafter pursued for the remainder of his life. From 1877 to '91 he was a trustee of the College of Physicians and Surgeons, and a member of the board of governors of the Woman's Hospital, New York. He was also one of the governors of the New York Hospital. He was author of many addresses and papers. He is survived by his widow, by two daughters, and by three sons.

DR. FRANKLIN G. HUMISTON, of East Jaffrey, N. H., who died in Boston last week, was born at Candor, N. Y., in 1856. After graduating from Dartmouth College, he obtained the degree of M.D. in 1886 from the University of Pennsylvania, and since that time had practised his profession in East Jaffrey. He is survived by his widow, by four daughters, and by two sons.

APPOINTMENTS.

ST. ELIZABETH'S HOSPITAL.—At the annual meeting of the trustees, on Jan. 3, *Dr. John R. Slattery* was elected associate physician-in-chief and superintendent of the hospital.

THE CARNEY HOSPITAL.—*Dr. Edward Marwick Plummer* has been appointed surgeon-in-chief of the recently consolidated oto-laryngologic department, with *Drs. John T. Sullivan, Timothy J. Shanahan,* and *Dana W. Drury* as surgeons, and *Drs. John L. Lougee, D. Campbell Smythe, William J. Sheehan,* and *Frederick A. Bogan* as assistant surgeons.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 4, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	11	3
Chicago	781	210	Waltham	4	—
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	10	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	5	—
Buffalo	—	—	North Adams	6	—
Pittsburgh	—	—	Northampton	6	—
Cincinnati	—	—	Beverly	6	—
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	—	—
Providence	—	—	Attleboro	9	2
Boston	261	55	Westfield	11	2
Worcester	52	12	Peabody	—	—
Fall River	42	16	Melrose	3	2
Lowell	37	6	Woburn	10	2
Cambridge	24	9	Newburyport	5	—
New Bedford	32	10	Gardner	3	—
Lynn	32	9	Marlboro	6	2
Springfield	25	4	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	24	7	Adams	—	—
Holyoke	26	10	Framingham	—	—
Brockton	10	1	Weymouth	—	—
Malden	14	3	Watertown	2	—
Haverhill	22	6	Southbridge	1	—
Salem	12	5	Plymouth	—	—
Newton	20	4	Webster	3	—
Pittsburg	—	—	Methuen	—	—
Taunton	13	1	Wakefield	—	—
Everett	3	1	Arlington	—	—
Quincy	—	—	Greenfield	—	—
Chelsea	13	3	Winthrop	7	—

Original Articles.

THE WORK OF THE MASSACHUSETTS STATE BOARD OF HEALTH IN THE INVESTIGATION OF INFANTILE PARALYSIS.*

BY ROBERT W. LOVETT, M.D., BOSTON.

In the year 1907 there occurred in New York City the most extensive epidemic of infantile paralysis of modern times. This epidemic was made the subject of an investigation by a committee of physicians representing various medical societies, and their results were later published.[1] In the fall of 1907 it became evident in Massachusetts that there were more cases occurring in the state than in previous years, and it was decided by the Massachusetts State Board of Health that an investigation into the distribution and characteristics of the disease as it appeared in the state over a period of years might be of value. In February, 1908, circular letters were sent out by the Board to every physician in Massachusetts—some 6,000 in all—asking if in the year 1907 they had seen in their practice any cases of acute febrile disturbance in young children, followed by paralysis. To the physicians replying in the affirmative, blanks, following in general those of the New York committee, were sent to be filled out, and the reports of 234 cases were received and analyzed.

These cases were distributed throughout the state in a general way corresponding to the density of population, although certain foci of increased incidence of the disease occurred in different parts of the state, such as Pittsfield and the valley of the Merrimac River. The environment and history of each case was recorded as far as possible, and it was announced that the Board would continue the investigation on the same lines in the following year. The data, along with a resumé of the subject, were published in the summer of 1908.[2]

In 1908[3] the investigation was carried on along the same lines as in 1907. As at that time we had no direct proof that the disease was infectious, an attempt was made to investigate the stools of children sick with the disease on the ground that perhaps some especial bacteria might be found in the stools. Prof. Theobald Smith, pathologist to the Board, conducted this research, which proved negative, and was abandoned in 1909, after Flexner's demonstration that the disease was an infectious one.

In 1907 there occurred only 136 cases, and half of these occurred as an epidemic in Franklin County. The distribution of the cases was different from that of 1907, and communities affected one year apparently were comparatively immune the following year. The epidemic of 69 cases in Franklin County in 1907, just spoken of, was carefully studied by Dr. H. C. Emerson of Springfield,[3] at that time one of the medical inspectors of the Board, and in his conclusions he stated that the disease was evidently infectious, and at the most, mildly contagious. He also presented to the Board his conclusion that the disease was probably transmitted by insects, but this part of his paper was suppressed on the ground that the evidence was insufficient.

In 1909 the investigation showed 923 cases occurring in Massachusetts. Up to this year the work of collecting data had been done by mail by the clerical force of the Board, the blanks being filled out by the practitioners, but with the very marked increase in the cases, it seemed advisable to obtain more data and to secure them on the spot for the sake of uniformity, by a special investigator, and Mr. P. A. E. Sheppard, at that time a senior student in the Harvard Medical School, was engaged by the Board for this work, and continued in its employ until the autumn of 1912. It was his duty to visit as many cases as possible during or soon after the attack, and to fill out a blank embodying the information required.

In order to secure the best advice from various points of view in formulating the inquiry, four gentlemen were asked to serve as an Advisory Committee to the Secretary of the Board, Dr. M. W. Richardson, and to the writer who represented the Board in the investigation. These were Dr. Theobald Smith, Professor of Comparative Pathology; Dr. M. J. Rosenau, Professor of Preventive Medicine and Hygiene; Dr. J. H. Wright, Pathologist to the Massachusetts General Hospital and Assistant Professor of Pathology; and Dr. John Lovett Morse, Associate Professor of Pediatrics in the Harvard Medical School, and this Advisory Committee has continued to give its time and advice in the inquiry without compensation up to the present time, meeting as often as appeared necessary.

In November, 1909, the disease was made a notifiable one in Massachusetts, placing it in the category with scarlet fever, diphtheria and similar diseases. The attitude of the board in the matter at this time was expressed in the report for 1909, as follows: "It is only proper to state that in the present state of our knowledge no one can say which data are relevant and which are not. It is possible that some data which now seem of no importance may be of assistance to some future investigator."

In November, 1909,[4] came the demonstration of Flexner and Lewis, that the disease was infectious, was due to a filterable virus, and could be produced in monkeys.

The routine data for 1909 were presented without conclusions, and were published as in former years.[5] In the official publication[6] of the Board covering 1909 were included (1) the general report for 1909; (2) an analysis of an epidemic of 82 cases in Berkshire County by Dr. L. A. Jones, Health Inspector of the Board for that district; (3) an article on the treatment of infantile paralysis by the Orthopedic Depart-

* Presented by invitation before the Academy of Arts and Sciences, Boston, January 8, 1913.

ment of the Harvard Medical School, previously published elsewhere,[7] and (4) a paper on the diagnosis in the early and prodromal stages by W. P. Lucas, work done from the Proctor Fund of the Harvard Medical School.[8]

Up to and including the year 1909, the investigation had been carried on from the regular appropriation of the Board, but in January, 1910, the legislature was asked to appropriate $5,000 for the continuation and extension of the study, now becoming more expensive. This money was voted without question and without opposition. In February, 1910, another investigator, Dr. J. P. Hennelly, a recent graduate of the Harvard Medical School, was detailed to the investigation of cases.

In 1910 there were reported in the state 845 cases, and a large epidemic of 148 cases occurred in Springfield, and another of 89 cases in Fall River. The publication for 1910 contained (1) the routine report of the disease for the year[9]; (2) a careful study of the Fall River epidemic by Dr. Hennelly[10]; (3) an extended analysis of the Springfield epidemic by Dr. Sheppard[10]; (4) an article by Rosenau, Sheppard and Amoss dealing with an unsuccessful attempt to produce the disease in monkeys by inoculation with the nasal, pharyngeal and buccal secretion of 18 human cases[9]; and (5) an investigation[9] by Dr. May, a veterinary surgeon, who made at the request of the Board an inquiry into the occurrence in Massachusetts in 1910 of paralysis in the lower animals and fowls. Many cases of such paralysis were found, and the report was of interest, but seemed to throw no especial light on the relation of such paralysis to the human disease. In this year, as in previous ones, the Board bought paralyzed animals wherever obtainable, and sent them to Prof. Theobald Smith for investigation.

In 1911 the legislature was asked for $10,000 for the extension of the inquiry, especially necessitated by the increasing size of the yearly publication and for other reasons to be spoken of. This amount was granted without opposition or delay.

Before passing to our analysis of the data collected in the four years ending in 1910, a brief resumé of the routine work for 1911 should be given. In that year 260 cases were reported, and certain work, not yet published, was done as to the possible relation of the disease to Herpes zoster.

In April, 1911, Dr. B. E. Wood of Boston, an orthopedic surgeon of experience, was requested to examine and report to the Board upon the condition then of the 234 cases paralyzed in 1907. He reported complete or functional recovery in 25 per cent. of these.[11]

In December, 1911, Dr. W. P. Lucas and Dr. R. B. Osgood of Boston, undertook an inquiry to ascertain whether an immunity to various bacterial infections artificially produced in monkeys, produced also immunity to the virus of infantile paralysis. The experiments seemed to show that in the Rhesus monkey such immunity afforded no demonstrable protection to the virus of infantile paralysis.[12]

A study of the blood in 13 acute cases of the disease was made in 1911 and reported to the Board by Hammond and Sheppard.[13]

We had now been at work for four years along definite and more or less unvarying lines, the collection of data covering points presumably of interest, and it seemed as if four years of such data was a sufficient number from which to draw conclusions, and that future work had better be formulated after a careful study of these conclusions and on the lines indicated by them, because the indefinite continuance of field work seemed to offer little promise of bringing out new facts. The data were therefore analyzed by Dr. Richardson and the writer.[14]

It was found that from 1907 to 1910 inclusive there had been reported to the board 2138 cases, and on the whole there seemed to be a two-year periodicity when limited localities were considered. In each of the years and taking all four together it was evidently an affection relatively more prevalent in the smaller cities and towns than in the larger, the average population in the 25 places where the disease was most prevalent being about 5000, and in the 25 where it was least prevalent being 52,000. This was not the case with scarlet fever analyzed as a control, which was relatively as prevalent in the same years in the larger cities and towns as in the smaller.

Bearing still further on the fact that infantile paralysis is essentially a rural disease, the number of domestic animals in proportion to the population was investigated in the 25 cities and towns where the disease was most prevalent and in the 25 where it was least prevalent. In those where the disease was least prevalent there was one cow to 84 inhabitants; where most prevalent one cow to 11 inhabitants; where least prevalent one horse to 32; where most prevalent one to 14. As to swine, there was one to 287 inhabitants where least prevalent; one to 60 where most. An investigation as to poultry showed one fowl to 22 inhabitants in the least affected regions; one fowl to 1.75 inhabitants in the most affected. Both analyses thus clearly brought out a fact established elsewhere,—that the disease was by preference rural rather than urban.

The seasonal occurrence was as usual, the disease reaching its height in either July, August or September in the various years, but never quite disappearing even in winter. The investigation of age, sex and mortality added nothing to the facts known. In the study of the environment of the patients in these four years there was no marked predilection of the disease for any especial floor in the house, and the age of the house, the sanitary condition and the degree of dampness seemed to be about the average in the community. The investigation as to the nearness of the house to the railroad track

showed nothing of apparent importance. An attempt was made to study the rôle of dust as a possible agent of the disease, and what was classed as an excessive amount was recorded in 36 per cent. of cases carefully studied. The amount of rainfall was also studied, which showed that the largest number of cases did not occur in the driest years.

The question of the possible transfer of the disease by insects and vermin had been tabulated from the first, and "flies" were naturally reported as present in 90 per cent. of cases and mosquitoes in over 40 per cent., but the information was not collected by an expert, and seemed to be too general to be of value.

The sickness, paralysis or death of domestic animals in infected families, was carefully recorded in connection with the cases and independently by Dr. May, but we could not feel that the number reported was necessarily larger than might have occurred in non-infected families, and the collection of control figures seemed hardly worth while, especially as Prof. Theobald Smith had inoculated monkeys with filtered emulsions of the cords of 12 such animals, the results of which were negative, and had been furnished with a fund raised by private subscription for an inquiry into animal paralysis and its possible bearing on the disease.

The patients affected were studied as to swimming, accidents and exposure just before the attack, as to previous diet and health, as to diseases prevalent in the town at the time, all of which seemed to show little of importance and to warrant no especial conclusions. The rest of the figures related to the clinical features of the attack, which had no apparent bearing on the etiology.

We found what appeared to be evidences of transmission by direct personal contact in 13 per cent. of cases carefully studied, and in 7 per cent. of the families more than one case occurred. Still, the evidence in favor of a contagious disease was not quite satisfactory, for institutions for children were practically immune, and in the one or two instances of disease in such institutions it did not spread, nor did it spread in schools or where children were crowded together. The distribution in general was erratic, isolated cases occurred, and the incubation was variable when it could be determined. Moreover, the attempts of Rosenau, Amoss and Sheppard, and of Strauss of New York, to transmit the disease by nasal and mouth secretions from persons in the acute stage of the disease had proved negative.

These data were then presented to our Advisory Board, and discussed with them. Considering all the facts, our attention was naturally turned to insects as a possible means of transmission. We had spoken of our suspicions in this direction in the 1909 report, and in the 1910 report expressed our belief that such an investigation to be of value must be made by an expert entomologist. After the study of the data spoken of, it was decided to make such an investigation, and in the summer of 1911 Mr. Charles T. Brues, Instructor in Economic Entomology in Harvard University, was secured by the Board to go with the investigator, Dr. Sheppard, to see the acute cases and to report to the Board as to the prevalence of especial insects, especially biting insects, in these localities.

Between July 30, and September 26, 1911, the houses of 88 patients in 17 cities and towns were visited, and the stable fly was found in the environment in practically every case investigated. This and the mosquito were the only biting insects found constantly present. It seemed that if either of these insects were responsible it probably was the stable fly, as, if it were the mosquito, the disease would be more widespread, and would attack adults as well as children; whereas the fly would be more likely to bite children than adults, and the seasonal distribution was rather more like that of the fly than of the mosquito.[15]

Prof. Rosenau was then requested on behalf of the Board to undertake the experiment of transmitting the disease from monkey to monkey by means of the stable fly, and with Mr. Brues reported at the Congress of Hygiene in Washington on September 26, 1912,[16] that inoculated monkeys had been bitten by stable flies, and that of 12 healthy monkeys subsequently bitten by the same flies six showed indications of the disease. This was subsequently confirmed by independent experiments of Anderson and Frost.[17]

The sequence was then as follows: (1) the routine collection of data for four years, with the publication of these data at the close of each year without theorizing; (2) an analysis and study of these data at the end of four years; (3) deductions from these data; (4) new lines of observation founded on these deductions, leading to (5) Rosenau's investigations and discovery.

If I have dwelt somewhat insistently on the part played by the State Board of Health in this matter, somewhat more than may have seemed wholly necessary, it has been because I am anxious to lay stress on the fact that this combined work between a public health board and the scientific men of a university medical school seems to offer possibilities of much use in the development of preventive medicine. To speak of this desirable combination as a theoretical matter is one thing; to point to a practical achievement brought about by this team work is another.

In the investigation of a public health problem of this sort most medical schools have neither the funds, the clinical material, nor the clerical force necessary for a long continued investigation. On the other hand, the public health boards do not as a rule have scientists of the first rank who are free to work on the purely scientific side of such problems. The

public health boards, however, have immense clinical material, for they are in touch with a large number of physicians and they have machinery for the assembling of desirable data.

Our own experience in the latter respect bears directly on the question. We have found the medical profession of the state interested, in sympathy with our efforts, and most helpful in every way almost without exception. The families of the cases investigated have given us every possible assistance, and have welcomed the inquiry. The legislature has been most liberal, and has granted us in all $20,000 in three separate years, without question. With a profession interested and sympathetic, a public ready to help, and a legislature ready to back such work financially, the Massachusetts experience points to the advisability of such concerted investigation and research between public health boards and the scientific departments of medical schools.

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SHOCK. A REVIEW OF THE THEORIES AND EXPERIMENTAL DATA TO DATE.

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THE phenomenon known as shock was a condition recognized by careful observers as early as 1568, when Clowes, and later in 1719, Weismann, spoke of it as a condition probably caused by the presence of a foreign body in the wound or blood. A little later than this the condition was attributed to a disturbed molecular condition in the tissue.

From a purely historical point of view the literature devoted to shock may be divided into three periods:

(1) From 1795, when the word was first used as we now use it, down to the beginning of the era of experimentation in 1876.

(2) The period from 1870 to 1885, devoted to careful experimental investigation, and

(3) From the re-opening of the question by Crile in 1889, to the present time.

From 1885 to 1889 practically no papers, others than purely casuistic ones, appeared on the subject.

Nearly half a century before Crile's work, Keen, Mitchell and Moorehouse advanced the theory of vasomotor exhaustion, and experimental work by Fischer in 1870 seemed to confirm this theory, *i.e.* of a vasomotor paralysis with flooding of the splanchnic veins and contraction of the peripheral vascular system. This was the recognized phenomena but no adequate explanation of its physiology was at hand.

Brown-Sequard believed the condition to be one of central anemia due to persistent contraction of the capillaries throughout the vasomotor centers.

Moulin: A reflex paralysis in the strictest sense of the word; a reflex inhibition, probably affecting all the functions of the nervous system and not being limited to the heart and blood vessels only.

Boise: Hyperirritation of the entire sympathetic system with resulting stimulation of vasomotor nerves, contraction of arterioles and spasmodic heart action.

Kinneman emphasizes the rôle of a fall in temperature as the principal causative factor in shock, and as a result of extensive animal experimentation, finds that shock must not be considered as due to the lowering or exhausting of any one bodily function, but as a composite condition embracing an interference with normal height of the blood-pressure, interference with the respiratory act and a marked fall in body temperature. Of these, as shock progresses, the most uniform and progressive factor is the fall in temperature. Dogs, after shock, were immersed in a bath of saline at body temperature, and others in a bath of higher temperature. These experiments showed (*a*) that a sufficient fall in body temperature can cause a decrease in respiratory rate and a marked fall in blood-pressure, which in itself constitutes a shock; (*b*) conversely, a limiting of the fall of temperature limits the fall in pressure and prevents a fall in respiration. (*c*) On the other hand, a rise in temperature causes a rise in blood pressure and respiratory rate, reduced by shock, with the result of a gradual annihilation of all symptoms. Thus, of the three factors, temperature commands first place by its power of production, of limitation and amelioration of the composite condition—shock.

As the problem stands today there are several contradictory theories pretty well based on rather extensive experimental evidence. It is to the proper interpretation of this accumulated experimental data that we must look for the physiologic cause rather than to the theory or opinion of any one worker. It is interesting, and at the same time puzzling, to note that each observer is equally sure that he has discovered, through experimentation, the fundamental or chief underlying factor. Thus Crile maintains that vasomotor exhaustion is the primary cause. Boise states that cardiac exhaustion is the prime factor, whereas Howell believes that both cardiac

and vascular changes are at fault; Kinneman (as quoted above) stands for a disturbance of thermogenetic functions; Henderson for the reduction of carbon dioxid content of the blood and tissues (acapnia). Meltzer from experimental evidence, disagrees with Crile, stating that instead of vasomotor exhaustion there is reflex inhibition of the activity of the vasomotor center of the cord. In regard to this particular question it is very probable that personal equation plays a large rôle and that what Meltzer calls the initial symptoms or rapid onset, Crile does not recognize till fully developed shock is evident, (the slow onset).

What is exactly meant by shock is also hard to define. The word represents an intricate symptom-complex and should not be understood to stand for a specific clinical actuality. For this reason we can see how divergent certain views as to its underlying factors may be.

It seems best here to give a synopsis of the work of these men who have recently gone most thoroughly into this subject and then later to correlate these results as far as possible. I shall reserve Crile's work till last as his is the most extensive and seems to bring the subject more nearly up to date.

If we think of shock as a condition induced by fear, exposure, infections or trauma, in which there is exhaustion of nerve cells, principally those of the vasomotor centers but also, probably to a much less extent, of other centers in the medulla, such as respiratory and cardiac, and consequently lowered vasomotor tone and cardiac and respiratory depression of so even a degree as often to result in death, we have before us the general picture, the physiologic cause of which these experimental evidences are trying to discover.

Malcolm of London, dealing with the problem from a purely clinical point of view, believes that if vasomotor exhaustion is present, then the innervation of small peripherical arterioles, being cut off from central control, must be relaxed. This should result in an overfilling of the peripherical vessels; but as a matter of fact, all clinical evidence speaks against such over-filling. The body surface is cold and pale, the mucous membrane anemic, incisions made during shock are almost bloodless. Crile answers this objection by stating that the state of relaxation of peripheral blood-pressure is perfectly consistent with such a condition as the blood has already flowed *through* the dilated arterioles and has collected in the deep veins where it is demonstrable at death.

Bartlett shows that the effect of removal of blood from the body in hemorrhage is not identical with that accompanying a fall of blood-pressure due to trauma. It would seem that the vasoconstriction following bleeding indicates an automatic protective mechanism which is not evident in pure shock. This author believes, with Crile, that the decreased blood-pressure following trauma is due to decreased vasomotor tone, but does not state whether he considers this a complete exhaustion or not.

Leibig and Lyon, however, working only on vagi by electrical stimulation prove that vasomotor exhaustion does *not* occur in shock but rather vasoconstriction. This work is limited to this one class of experiments and does not prove alike for all kinds of surgical trauma and shock.

Brown ascribes the difference between the sudden shock, often seen on the operating table, and the shock of more insidious onset, seen hours later, as follows: The shock noticed during operation is due to the combined effect of the anesthetic in lowering the blood-pressure and the temporary exhaustion of the vasomotor centre by repeated stimulation of the partially narcotized nerve cells together with hemorrhage of varying degree, still further lowering blood-pressure and vagus inhibition of the heart. The later phase of shock depends on exhaustion of the food supply stored up in the vasomotor cells. Owing to the fullness of the circulation through the centers due to the depressed blood pressure, consequent on the exhaustion, no further supply of food is taken up and a vicious circle is set up, causing further exhaustion and shock. This theory has a definite experimental and clinical basis and furthermore seems resasonable.

We now come to a more recent and more radical and widely different view of the underlying principles of shock, but one also well established by experimental evidence—that of Henderson.

This author believes that the underlying cause is insufficiency of the carbon dioxid content of the blood. The tension of this gas in the circulation is the normal stimulus of the respiratory centre, and consequently is regulated automatically in a healthy individual under normal conditions. If, however, the rate of respiration be markedly increased the over-ventilation of the lungs causes an increased inspiration of oxygen resulting in a condition of over-oxygenation of the blood with diminished carbon dioxid or—acapnia. The respiratory centre is thus robbed of its normal stimulus and spontaneous respiration ceases, although the heart continues to beat (apnea). The sensitiveness of the respiratory centre for carbon dioxid varies. If this sensitiveness is acute and the acapnia is mild in degree a vigorous circulation will permit vital processes to continue long enough for the re-accumulation of sufficient carbon dioxid in the blood to restore spontaneous respiration. If, however, the acapnia is intense, apnea continues and death takes place from oxygen starvation of the heart. With acapnia there comes dilatation of the splanchnic veins and a fall in blood pressure. The tonicity of the walls of the blood vessels is in direct proportion to the carbon dioxid content of the blood. Henderson quotes Crile to show that in his (Crile's) experimental

work it was necessary to resort to artificial respiration in order to keep the animal alive long enough to procure the evidence of the vasomotor origin of shock. He, therefore, concludes that the respiratory failure is the primary change in shock and that the other phenomena are of secondary origin.

Henderson advocates the use of oxygen and carbon dioxid 20 to 1 by inhalation in treatment of shock, even by intra-tracheal insufflation if necessary or rebreathing with a paper bag to renew the stimulating effect of Co_2.

(N. B. This has been recently tried with success and reported by Cotton in three cases, when shock seemed to be due to excessive respiration; one a sobbing, hysterical woman.)

If apnea is prolonged, asphyxial acidosis develops. If the acapnia is not too intense these products of incomplete tissue combustion induce isolated gasps, followed by Cheyne-Stokes breathing and prevent immediate death. After intense bodily suffering failure of respiration is the usual form of death. It is only when the pain is sufficiently continuous to prevent apnea that the slower process of failure of circulation develops.

It seems to the writer that Henderson's theory is sound as far as it goes, his work convincing and his reasoning logical, but that he does not include, in regarding deficiency of carbon dioxid, all the features of shock or the fundamentals present at the very onset of the condition.

Shock is a complex condition, not a definite symptom, but a symptom-complex, dependent on more than one causative factor.

Because of the length of time over which he has carried his experimental work and the thoroughness and extent of his researches, Crile's work seems more than any other to deserve attention and recognition, and because he has built up a well founded line of treatment based on his experimental work it seems consistent that more reliance should be put on his theories and observations and results than on those doing only fragmentary work on separate phases of this complex problem.

It is well known that severe infection, hemorrhage, exhaustion from physical exertion, exophthalmic goitre, surgical trauma and overwhelming emotion are the common predisposing causes of surgical death. An operation that would present virtually no risk in the uncomplicated stage may readily prove fatal in any of these handicapped cases. The question to determine, therefore, is, "What are the factors in the technic of a surgical operation that may further impair the brain cells and thus turn the balance to a fatal termination?"

In shock, the essential phenomenon is a diminution of blood-pressure. This must be due to the exhaustion of the cardiac muscle, cardiac centre, blood vessels or vasomotor center. Experiment shows that it is not the cardiac muscle or its controlling nervous mechanism that is at fault but a loss of peripheral resistance. Fatigue of blood vessels can be excluded also experimentally. It, therefore, must be the vasomotor *centre* which suffers injury and causes reflexly the symptoms characteristic of shock.

Quoting from a large series of experiments carried out on dogs under ether anesthesia, and under varying conditions of temperature, etc., it was found that (1) the duration of an operation alone was a potent factor in the production of shock. (2) Animals may be killed from continuous anesthesia alone, though this anesthetic be carefully administered over a long period. (3) There is strong evidence that chloroform, even barring accidents, is a more potent factor in destroying the animal than ether. (4) Exposure to air is a great factor in producing shock, reducing body temperature and causing drying of tissues. This is strikingly observed in case of the peritoneum, pleura and brain, and affects particularly the vasomotor mechanism. Exposure causes first a hyperexcitability, which is soon followed by non-excitability. Exposure of the peritoneum causes splanchnic vascular dilatation and also affects respiration unfavorably. (5) The element of time in all abdominal operations was unmistakable. There is sufficient evidence at hand to establish at least a high degree of probability that the shock in operations on the splanchnic area is largely caused by disturbance of the *local* splanchnic vasomotor mechanism.

The experiments of Mall show that the splanchnic nerves are vein-nerves and control this large splanchnic vascular area. Every experiment in this area gave evidence of the dilatation of the vesels controlled by these nerves and the decline of blood pressure occurring pari parsu with this dilatation.

The great shock caused by injuries to the male genital organs is probably due largely to vasomotor dilatation of the splanchnic area. It is safe to say that the "excluded splanchnic circulation" experiments only prove the splanchnic vasomotor factor plays but a part even in such injuries as involve its own area alone; there is no evidence tending to show that in operations in areas of the body other than the splanchnic and genito-urinary tract, that the splanchnic factor plays a special part, probably not much more of a part than in every other area of like vascular capacity. Experiments in which this area was not involved did not show a condition of vascular distension in this area different from that of other areas.

The output of the heart is in direct ratio to the pressure of the vena cava, and not at all to the height of the aortic pressure. The nervous pressure then determines the heart's output. In the condition of profound shock the accelerated cardiac action is taken as evidence of the effort of the regulating centers to recover the lost blood-pressure, but the vasoconstrictor or pres-

sor mechanism is not active; it is probably paralyzed or seriously impaired. The splendid action of the heart under these conditions, on infusion of salt solution proves it to be well capable of further action. It is evident that the heart's action is the last of the great vital functions to fail. Post mortem appearances show the large venous trunks full, sometimes enormously engorged, the arteries empty, the veins of the splanchnic area not more distended than those of the somatic, unless the experiment had included some procedure in the splanchnic area. In a general way, it may be stated that in the organs and tissues, such as intestines, the experiments on which produced a primary fall in blood-pressure, shock was induced earlier than such tissues and organs as the extremities, which produced a primary rise in blood pressure. Gross tissue resistance proved to be a very fair index to resistance.

After shock has been fairly induced reflexes are never so acute, vasomotor actions were sluggish and ineffectual and when blood-pressure declined it was, as a rule, slowly or never regained.

Extensive experimentation shows, therefore, that in shock the essential factors to be considered are trauma, the anesthetic, a primary rise with a following fall in blood-pressure, decrease in body temperature and vasomotor inhibition, paralysis and then exhaustion. In addition to these physiologic changes more recent experimental work of Crile and his associates have shown another, and perhaps entirely unlooked for, physiologic and pathologic process to take place in the presence of shock. I refer to the recent work showing extensive cytologic changes in the brain, as a result of trauma, fear, infection, etc. Animals were overtransfused so that the factor of anemia of the brain was wholly excluded during the application of the shock producing trauma. In every instance, morphologic changes in the cells of all parts of the brain were found, especially in the cortex and cerebellum. It required more trauma to produce equal changes in animals protected against low blood-pressure than in those whose blood-pressure gradually declined during the experiment. The structural changes include changes in the absolute size of the cells, in the size relation of the nucleus, plasma, surrounding membrane of the cell, nucleus and the general contour of the cell. As to gross size, the increase varies from slight to even eight times the normal, the nucleus becomes relatively larger, the limiting membranes may be even ruptured, causing distortion of the cell. In extreme shock the cell completely loses its contour and presents the appearance of a disorganized mass of protoplasm.

At first, in shock, there may be increase in the reaction to Nissl stain, but later, as shock increases, the reaction becomes less and in the final stages there is little or no stain reaction. Even in cases of fatal shock, however, not all of the cells are thus altered. On morphologic grounds, when the nucleus, nucleolus and the cell body become so broken down as to have an undifferentiated mass of protoplasm, the cell is almost certainly dead and will never regenerate, *i.e.* the brain cell is finally deprived of its discharging nervous energy and becomes exhausted just as exhaustion follows too prolonged muscular exertion. To use a vulgar word, the cell literally and figuratively becomes "busted." The gravity of a given case is well indicated by the percentage of cells that are thus damaged. It has been shown, likewise, that the cells of the brain in various diseases also experience the same changes as the one found in shock. A nerve cell that has been impaired by overwork, anemia, infection, drug poisoning, or Graves' disease, obeys the same general law of change. Therefore the changes that are seen in the brain cells are not in the least specific for any etiologic factor, for they appear to be common to all of the above named conditions so far studied.

These studies only serve to further illustrate more forcibly how complex a state shock is and how many factors enter into its physiology. These cytologic changes would rationally explain many of the post-operative neurasthenic states so often seen.

Crile goes further and states that there is strong negative evidence that traumatic impulses are not excluded by ether anesthesia from the part of the brain that is apparently asleep. For if this factor of fear be excluded and if, in addition, the traumatic impulses are prevented from reaching the brain by cocaine, then, despite the intensity or duration of the trauma, within the zone so blocked, there are found no morphologic changes in the brain cells. If, on the other hand, no blocking was used, cell changes are everywhere present. Therefore, although ether anesthesia produces unconsciousness, it apparently protects none of the brain cells against exhaustion from the trauma of the surgical procedure. Ether is, so to speak, but a veneer that covers the deeper suffering of the patient (or patient's brain cells).

Crile believes that ether alone is one of the determining factors in the production of shock. In a series of parallel experiments on animals with ether and with nitrous oxid it was found that the damage to brain cells under ether was four times greater than under nitrous oxid.

Having reviewed the factors on which Crile believes shock is based, we are now in a position to consider the logic of his solution of the problem of treatment. It seems to me it is an extremely logical and reasonable line of deduction. Some of it is old, but a great deal is certainly new and advanced, well-founded on experimental work and extremely efficient from a practical point. He adds practically nothing new to our routine of treatment in cases in which shock has already developed, *i.e.*, heat, rest, morphia, intravenous infusion, bandaging

of extremities, elevation of the foot of the bed and transfusion. He believes that intravenous infusion is of prime importance because it causes, in the first place, an increase in the venous pressure in the vena cava and consequently the output of the heart is at once increased, the amplitude of the strokes lengthened, the chambers being full, the contractions become more forcible and blood-pressure begins to rise. The combination of small, frequently repeated hypodermic injections of strychnia together with saline infusion produces a more constant pressure than ether alone. Over-stimulation is followed by greater depression, hence large doses of strychnia are absolutely contra-indicated, for such doses produce vasomotor paralysis and shock the same as trauma does. It is as reasonable to treat shock with large doses of strychnia as to treat strychnine poisoning with trauma. No justification can be found, experimentally, for the use of alcohol, nitroglycerin or anylnitrite as stimulants. As regards alcohol, in not a single instance was there a sustained improvement in the blood-pressure or respiration. On the contrary, the most constant and marked effect on the blood-pressure was a decline. The final breakdown was more sudden with drugs than in control animals. Adrenalin, however, administered cautiously and continuously, with a limited amount of saline, proved the best stimulant, in addition to external pressure by Crile's rubber suit or bandaging of extremities.

The great advance made by Crile in the treatment of shock has been in elaborating a logical *prophylaxis*. This we are in a position to study and to use clearly his reasons for.

It is an unpleasant thought that although our patient is unconscious from general anesthesia, yet the nerve impulses inaugurated by operative injury of the nerves reach the brain and produce harmful changes there which are the precursors of shock. It is clear that if general anesthesia cannot prevent the damage done to the brain in the course of operation some means must be devised to prevent this damage. It is known that cocaine, in addition to its ability to block sensory impulses, also blocks impulses that cause the response of the entire nervous system, under general anesthesia. If we combine, therefore, a local with a general anesthetic and avoid fear previous to operation, by the use of sufficiently large doses of morphia to bring the patient to the operation in a quiet, contented frame of mind, it matters not how poor the risk or how extensive the operation, the nervous system is protected and the immediate operative risk is eliminated.

The elimination of the factor of fear is an extremely important one and can be entirely accomplished only by the most careful co-operation on the part of the nursing and operating staff. The patient should be told of all the preparations to safeguard his welfare before, during and after operation; his room should be quiet and free from outside disturbances.

Fear is stronger than will, but under morphine a mental state is produced in which one is neither brave nor a coward, because this drug destroys the associational power of the brain and the patient is left in a quiet state of mental and physical repose.

If we can, therefore, prevent fear and obtain an innocuous substitute for ether, and block harmful nerve impulses from the brain, we have a condition best described by the word *anoci-association*, that is one in which the patient is both mentally and physically protected from nocuous impulses or influences.

(The difference between anoci-association and anesthesia is as follows: Although inhalation anesthesia confers the beneficent loss of consciousness and protects from pain, it does not prevent the nerve impulses from reaching and fatiguing the brain cells and hence does not prevent shock or the train of later nervous impairments so common following shock, *i.e.* neurasthenic post-operative states.)

The *prophylaxis*, therefore, which is to produce a state of *anoci-association* consists first in gaining the confidence of the patient, reassurance of a favorable outcome, the generous enough use of morphia before operation to produce a state of mental relaxation and content, nitrous oxid and oxygen anesthesia, nerve-blocking by cocaine or novocaine, great care to prevent loss of body heat, injury to tissues handled, and trauma to any but the immediate site of operation, speed reasonable to safety and a similar anocuous after-care. Crile, in abdominal operations, uses the quinine and urea hydrochlorate injected into the peritoneal edge before sewing up. The anesthesia produced locally by this drug lasts for 24 to 48 hours and protects the patient almost entirely from the wound pain, as it is the pulling of peritoneum, which is the greatest factor in the causation of the post-operative wound pain.

During the past year the author has had the opportunity to personally follow the results of Crile's prophylactic treatment in a large number of cases treated in this way by Dr. Hugh Cabot, for whom he gave ether, and in several cases of his own. I was immediately struck with the fact that patients required about a third less ether (given by the drop method) than when not treated by anoci-association. The ether was also taken more easily. Nausea and vomiting were absent in a great many cases and slight in others. One patient of my own, who had been operated on (laparotomy) four times before and was well familiar with the post-operative discomforts, told me that "the absence of the apprehension of pain—and the absolute lack of backache and wound pain were the most striking things to him." He was very much surprised at the success of the method and in two subsequent laparotomies has had no fear

or dread and has had a very comfortable time.

No sepsis has resulted from the use of the urea compound as far as I know. Patients distinctly neurasthenic are the type of case in which the most noticeable results are obtained. It certainly is most gratifying to witness such absolute post-operative comfort. The surprise to the patient is even greater than to the surgeon. I cannot say enough in praise of this whole procedure, as I feel sure it adds a strong element of safety in any surgical operation—especially operations in the abdominal cavity and gives the patient a sense of comfort not obtainable in any other way.

Before closing this paper, it is necessary to give a summary of some recent work done in England by Gray and Parson. These authors worked along the same line as Crile, especially on blood-pressure. They divide shock into three stages:

(1) Stage of stimulation or pressor stage, which is characterized by a rise in blood-pressure.

(2) Stage of depression or depressor stage, characterized by a gradual fall in blood-pressure, and

(3) Stage of equilibrium, when the active, abnormal, afferent impulses are in abeyance.

These authors believe that one of the most important factors in the production of shock is the region of the body which is attacked. To each tissue, organ, structure or operation a certain "shock value" may be ascribed. Consequently shock values vary directly with the relation of pressor to depressor fibers in the nerve supply of a part. In general, those parts which are physiologically most active contain the largest proportion of depressor fibers in their nerve supply and show the highest shock value. These authors made extensive observations on humans and supplemented them by like operations on dogs. The literature is very extensive and full and abundantly illustrated by charts of blood-pressure. They definitely and emphatically state that the most careful histologic examination of the brains and spinal cords of shocked animals failed to reveal any changes in the motor cells as described by Crile and Dolly. In the spinal cords they found no cystolytic changes at all. The cerebral cortex showed very little change and the Purkinje's cells showed no striking alterations. They conclude that there is no fatigue in shock of nerve centers to be detected histologically. Sensory cells, however, show some slight damages which, however, are not constant. The authors conclude that shock cannot be accurately defined, for the term does not express a state or condition, but rather a mechanism, which establishes, first, a defense of the organism against the harmful effects of injury and next, the protection of the vital centers from a degree of exhaustion from which they could not recover, *i.e.* shock is the reaction of the central nervous system to exaggerated or abnormal afferent impulses. The study of shock means the study of pathological vasomotor reflexes regarded as a symptom of the activity of the central nervous system. These authors believe that they have shown that a low blood-pressure is not an essential accompaniment of the clinical picture of shock. They, however, advise the methods of Crile for treating shock, with the exception of strychnia, which they believe *is* indicated before, during and after the operation involving shock. It seems evident from a careful survey of their work that their strong opposition to the findings of Crile is not well founded as they admit that there *were* some changes in the brain cells and that a degree of exhaustion of the nervous centers from which they could not recover is a possibility. They, therefore, admit two factors which, however, they were unable to prove experimentally.

A summary of the evidence in regard to the causative factors in the complex condition of shock may be stated somewhat as follows:

Shock is a condition of lowered vital resistance produced by varying factors, such as fear, injury or infection, of varying degrees. It is not possible to determine in a given case what physiologic function is first disturbed or what the exact sequence of pathologic changes are, but it does involve in its progress disturbance of the respiratory centre followed by disturbance of the oxygen-carbon dioxid equilibrium, lowering of body heat and depression of vasomotor tone resulting in a final paralysis or exhaustion of vasomotor activity, failure of respiration, cardiac failure and death.

Its treatment is based on a recognition of *all* of these factors. No one factor gives adequate explanation of the phenomenon.

THE CONTROL OF OPHTHALMIA NEONATORUM IN MASSACHUSETTS WITH SUGGESTIONS FOR THE IMPROVEMENT OF EXISTING CONDITIONS.*

BY FREDERICK E. CHENEY, M.D., BOSTON.

THIS paper is primarily concerned with the laws for the control of ophthalmia neonatorum in Massachusetts, the work which is being done in connection with these laws and with certain suggestions whereby, it seems to me, these laws may be still further improved. The necessity of such control is naturally more apparent to the oculist who is continually seeing babies incurably blind from this disease than it is to the other members of the profession who see these cases only occasionally or not at all. For an oculist to read a paper of this nature before a society composed principally of men in general practise, might under certain circumstances be regarded as a so-called "delicate situation." I believe,

* Read at a meeting of The New England Ophthalmological Society, Nov. 12, 1912, and at the semi-annual meeting of the Essex North District Medical Society, Jan. 1, 1913.

however, that the large body of our profession, men high-minded and sincere in their endeavor to do everything possible for the best good of the patient, recognize the justice and necessity of such laws. State medical laws like laws in general are directed against the small offending minority. The vast majority can be counted upon to "run straight" independent of control.

We know that blindness as a result of ophthalmia neonatorum is of the rarest occurrence if the disease is properly cared for and treated from the beginning. We also know that ophthalmia neonatorum is accountable for at least 20 per cent. of the cases of blindness in young children at the present time. For years the oculist has presented papers, at frequent intervals, advising the use of prophylactics and appropriate treatment, and the symptoms of the disease have been made so prominent that a failure in its recognition must be regarded as inexcusable neglect and not as justifiable ignorance. It has gradually become apparent that a more aggressive campaign than the writing of such papers must be undertaken if great good is to result. The recent vigorous work of the American Medical Association, of various local societies and organizations, and the passage of laws by many states within the last few years in an effort to limit the deplorable consequences of this disease, have undoubtedly accomplished much good and it is to be expected that the results will become more pronounced and prominent in the near future.

In 1905, action was taken by the Massachusetts Legislature in an effort to control ophthalmia neonatorum, and the law as it now stands, I will quote in full:

Sec. 49 (as amended by chap. 269, acts of 1910) . . . "Should one or both eyes of an infant become inflamed, swollen and red, and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relative or other attendant having charge of such infant to report in writing within six hours thereafter, to the board of health of the city or town in which the parents of the infant reside, the fact that such inflammation, swelling and redness of the eyes and unnatural discharge exist. On receipt of such report, or of notice of the same symptoms given by a physician as provided by the following section, the board of health shall take such immediate action as it may deem necessary in order that blindness may be prevented. Whoever violates the provisions of this section shall be punished by a fine of not more than one hundred dollars . . ."

Sec. 50 (as amended by Chap. 480, Acts of 1907) . . . "If one or both eyes of an infant whom, or whose mother, he (a physician) is called to visit become inflamed, swollen and red, and show an unnatural discharge within two weeks after the birth of such infant, he shall immediately give notice thereof in writing over his own signature to the selectmen or board of health of the town; and if he refuses or neglects to give such notice, he shall forfeit not less than fifty nor more than two hundred dollars for each offence."

(Chapter 458, Acts of 1910.) "Sec. 1. The State board of health shall furnish, free of cost, to physicians registered under the laws of the Commonwealth such prophylactic remedy as it may deem best for the prevention of ophthalmia neonatorum.

"Sec. 2. To carry out the provisions of this act there may be expended annually from the treasury of the Commonwealth a sum not exceeding twenty-five hundred dollars."

A law passed by the last Legislature (1912) that aims to impress still more emphatically upon the medical profession the importance of reporting these cases promptly empowers the Secretary of State to place on the State birth return blanks an explanation of the ophthalmia neonatorum reporting law. As a result of this new law, therefore, all birth return blanks have printed at the top in red ink the following:

"Redness, swelling and unnatural discharge from one or both of the infant's eyes within two weeks after birth must be reported immediately to the board of health."—Chapt. 251, Acts of 1905. As the present law "Relative to the Reports and Records of Births" in this State—requires that "physicians and midwives shall within forty-eight hours after the birth of every child in cases of which they were in charge, mail or deliver to the clerk or register of the city or town in which the birth occurred, a notice stating the date and place of birth," etc., this Ophthalmia Neonatorum Reporting law is placed prominently before every physician who delivers a child within forty-eight hours of the birth, that is, of course, if the "report of births" law is universally complied with.

A measure adopted by the Boston Board of Health that should accomplish much good is a "special notice to parents to prevent blindness in children." It is sent to the parents on the receipt of the birth notice from the attending physician or midwife. This notice printed in English, Italian, or whatever nationality of the parents the birth returns may indicate, is as follows: "Should one or both eyes of an infant become inflamed, swollen and red and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relatives or other attendant having charge of such infant *to report in writing within six hours thereafter*, the fact that such inflammation, swelling and redness of the eyes, and unnatural discharge exists, to the Board of Health." Mr. Henry Copley Greene has suggested that this notice might be still more effective if the danger of blindness from the inflammation was made prominent and I fully agree with him. I also believe that a similar notice should be sent out by every board of health in the state upon receipt of birth notices and that a law requiring this would be an extremely valuable measure.

The question of prophylactics will be referred to later but it may be said here that while such remedies are not required by law of the Massachusetts physician, the State Board of Charities requires their use in all licensed lying-in hospitals: "either the one per cent. solution of nitrate of silver furnished to physicians by the State Board of Health or of a similar preparation having the approval of said Board." Every licensee is also required "to report within six hours to the State Board of Health the discharge from his lying-in hospital and the destination of any infant whose eyes are inflamed, swollen and red and show an unnatural discharge."

The midwife-practice is always a difficult one to deal with in connection with ophthalmia neonatorum and the printed notice sent out by the Commission for the Blind to all midwives whose names they are able to obtain is certainly to be commended. This notice states in a simple, direct way the contagiousness of "babies' sore eyes," the danger of resulting blindness, the fact that such cases must be reported at once to the Board of Health and the fine of $100, that is imposed if such cases are not promptly reported. It is also advised that the midwife ask some doctor or the Board of Health to provide them with the one per cent. silver solution, tells them how to cleanse the baby's eyelids at birth and how to apply the nitrate of silver.

Dr. Mark W. Richardson, Secretary of the State Board of Health and Mr. Henry Copley Greene, Field Agent for the Conservation of Vision of the Massachusetts Commission for the Blind, have kindly written me in regard to prosecutions for failure to carry out the reporting law. While there have been no prosecutions by the State Board, the Boston Board of Health, beginning October 8, 1910, have brought nine physicians and two midwives to court. There have also been prosecutions of physicians by the Massachusetts Society for the Prevention of Cruelty to Children. The value of such prosecutions is indicated by the fact that the number of reported cases of ophthalmia neonatorum has been greatly increased since that first prosecution was made. The State Board of Health has twice sent the physicians of the state a solution of nitrate of silver (one per cent.) as a prophylactic and, in compliance to the law is prepared to furnish prophylactic remedies free of cost to all the physicians registered under the laws of the Commonwealth. Especially to be commended are the circulars accompanying the remedy which briefly refer to the serious nature of the disease as a cause of blindness, the importance of routine preventive treatment and of the doctors being notified at once if the eyes become inflamed. Also the advice as to placing the child in the hands of an oculist when possible and the desirability of sending cases to the Massachusetts Charitable Eye and Ear Infirmary or a similar institution. The printed state laws are included in this circular so that no reasonable excuse should exist for failure in reporting these cases when they are met with.

In 1910, at the suggestion of the Massachusetts Commission for the Blind, the Research Department of the Boston School of Social Workers investigated the question of ophthalmia neonatorum in ten cities of Massachusetts. This work was largely done by Mr. Henry Copley Greene, Miss Ethel W. Chase and Miss Gerna Saville. The conditions found to exist are most admirably presented by Mr. Greene in his monograph: "Ophthalmia Neonatorum in Ten Massachusetts Cities." A brief reference to this paper will help to make apparent the deplorable condition of affairs in 1909. It is certainly probable that these conditions have improved in a measure since this investigation. There can be no doubt, however, that much still remains to be accomplished if we are properly to control this disease. In these ten cities, Boston not included, there were in 1909, 147 cases of ophthalmia neonatorum known to have occurred. It is probable that these figures do not represent the entire number. Of these 147 cases the treatment was investigated in 104 with the following results:

"Thirty-two were treated in hospitals, 11 by oculists without the aid of any nurse, 14 by district nurses working under oculists or general physicians, 45 by obstetricians, 1 at a city farm and 1 unknown. Private physicians attending births were not only responsible for 85 per cent. of the above severe cases, but they also endeavored to cure 43 per cent. . . . Out of 61 registered physicians in eight of these cities, each of whom was confronted at least once during 1909 by a case of ophthalmia neonatorum, 39, or over 64 per cent., neither asked at any time for expert help nor yet transferred these cases to any hospital but invariably tried their inexpert hands at restraining the disease which they had failed to prevent. Their methods and results are as follows: If the parents could and would pay enough, these 39 treated the baby at home. If the parents could or would not pay sufficiently, these 39 only treated the baby when brought to the office. In one way or the other, they treated 44 gonorrheal or probably gonorrheal cases; and they saved on an average nearly one baby's eyes apiece. But the sight of nine babies they did not save and of these nine they lost by death, three. For these 39 physicians the best that can be said is that they reaped the result of their own laxity in 20 per cent. of their eye cases; or in other words, they failed to prevent blindness in every fifth case."

As a comparison with the above results in ophthalmia neonatorum treated by the general practitioner, let us take the results of those treated by the oculist. Among 116 babies treated in the same year (1909) at the Massachusetts Charitable Eye and Ear Infirmary, only six became blind and *all of these* were brought to the Infirmary after ulceration of the cornea was well established. Furthermore, it may said that if

these six patients had received appropriate treatment and care from the beginning, it is not probable that blindness would have resulted in a single case. Yet, of these cases of ophthalmia neonatorum treated by the general practitioner one case in five became blind. These babies were not in out-of-the-way, country places, but might have been placed under the care of a competent oculist with very little effort on the part of the physician.

Ophthalmia neonatorum is most emphatically a disease for the oculist to treat and it is regretable that placing these unfortunate babies under the care of a competent oculist is so often delayed. It is still more regretable that in most of these cases no legitimate excuse for the delay exists. It is unnecessary to say that the very large proportion of men in general practice will not treat ophthalmia neonatorum unless they are forced to it by circumstances over which they have no control. The question may naturally be asked why are general practitioners not qualified to treat ophthalmia neonatorum? It is easily recognized and it is a seemingly simple matter to keep the eyes clean and to apply some one of the various silver salts suggested by the oculist. My answer to this question is that I believe that the general physician with but a limited experience in treating diseases of the eye will rarely recognize an *early involvement of the cornea* if it takes place. The swollen and engorged lids and conjunctiva, the purulent discharge, the crying, struggling baby are all against his recognizing the beginning of corneal ulceration. It will often escape his attention until the ulcer has so seriously involved the cornea that the child is rendered partially or completely blind in consequence. The rapidity with which an ulcer of the cornea may develop, assume grave proportions and demand immediate expert treatment to save the sight is not generally appreciated. The following case will serve to illustrate this point as well as the successful outcome that may sometimes be obtained as a result of prompt, operative interference. The patient was a poorly developed marasmic child under treatment at the Massachusetts Charitable Eye and Ear Infirmary during my 1909 service. The conjunctival inflammation was about well, there was practically no discharge and we were expecting to send the child home within a few days. When seen by me one Saturday, both corneae were perfectly clear. I did not see the child on Sunday, but it was examined by one of my assistants during the morning, who reported no corneal involvement. When I examined the baby Monday morning, twenty-four hours later, I found at the lower inner quadrant of the cornea a nearly circular ulcer of about two millimeters in diameter, extending in depth nearly to Desemet's membrane and surrounded by a wide area of infiltration. The sudden development of this ulcer and its evident tendency to rapid progress convinced me that prompt action was imperative if the eye were to be saved, and I at once did Saemish's operation. In spite of the child's poor general condition, the recovery was rapid and uninterrupted. At the end of eight days the ulcer had almost entirely healed and the infiltration had cleared except in the area of actually broken-down tissue. There was an anterior synachia but no incarceration of the iris, and the pupillary area of the cornea being uninvolved, an eye with good useful vision was to be expected. This ulcer was probably of traumatic origin, and of the importance of trauma as a causative agent in these cases, I shall have more to say presently. It is of interest to note as an indication of the child's poor general condition and want of resistance that a few days later an abscess suddenly developed in the left ischio-rectal fossa.

Up to the present time, laws have been passed by twenty-five states aiming in a varying degree to control this disease. The laws of Massachusetts already quoted are probably as good as any and better than most of the state laws. It is an interesting fact that in none of these state laws does the word oculist appear. Cases must be reported "to the selectmen or Board of Health of the town" or the infant shall be "immediately placed in charge of a legally qualified practitioner of medicine," etc. It might, of course, be assumed that the selectmen and boards of health would, when possible, place these cases under the care of an oculist, but so far as can be judged, the law is not generally so construed. Mr. Greene writes me that the New Bedford Board of Health pays an oculist to treat practically every serious case. But this strongly-to-be-commended practice is probably exceptional. I am informed that our State Board of Health outside of Boston, through its District Medical Health Inspectors, follows up every reported case and advises with the local boards of health as to the proper treatment. What percent of these reported cases are placed under the care of an oculist, however, I am unable to say. If we are to control this disease, if these babies are to receive proper treatment, if the percent of blindness is to be greatly reduced, we must, I believe, have laws requiring that all cases of ophthalmia neonatorum be placed under the care or at least the supervision of an oculist within a certain time after the symptoms of the disease are first noted. In certain states this may not be practicable for the reason that the country is thinly settled and oculists are not easily obtainable. In this state, however, no such reason exists. We are a thickly settled community and well supplied with competent oculists, not only in the large cities but in most towns of eight or ten thousand inhabitants. That occasionally it would be impossible for some reason to comply with this law is, of course, probable, but such cases would be exceptional and the law could be so modified that a legitimate reason would free the practitioner from the legal consequences. It is also important that printed regulations as to the recognition of the disease, the immediate care

and protection of the eyes, the laws relating to the placing of the child under the care of an oculist (if such a law can be passed), be *forced* upon the medical profession, nurses and midwives at frequent intervals. Our State Board of Health and Commission for the Blind are, as we know, doing much good work in this direction. It seems to me important, however, that such instructions should be sent out frequently and for a long period of time. We all know from personal experience that the busy medical man will often "pigeon-hole" pamphlet literature for the want of time to read it and it is quickly forgotten. If, however, such literature were sent out regularly at three- or even six-months' intervals for the next ten years, its frequent repetition must, of necessity, make an impression. In this connection, I wish to make certain suggestions that I have not seen in the pamphlets of instruction and that seem to me important. Admitting the advisability of ophthalmia neonatorum patients being placed under the care of an oculist, there will still be periods of a day or two in many cases where the general practitioner must be responsible for the baby's eyes. Too much emphasis cannot be placed upon the fact, in presenting this subject to physicians and nurses that the prevention of corneal ulceration is the primary end and aim in the treatment of this disease. Aside from treating the conjunctival inflammation, there are certain other important measures for the prevention of corneal involvement that are not so generally recognized and consequently more often neglected. That a certain number of corneal ulcerations in this disease are often of traumatic origin is, of course, well known, but I am inclined to believe that trauma is accountable for a very much larger proportion of such cases than is generally supposed. The rapidity with which an ulcer may develop and become a dangerous condition is well emphasized in the case I have already reported. That this trauma is frequently inflicted by the babe itself, seems to me probable. In support of this conclusion, we have the facts: (1) that the lower, most exposed area of the cornea is oftenest first involved; (2) that a child will naturally carry its hands to an inflamed eye, and (3) that many new-born babes have fingernails of good growth and well adapted for producing a corneal abrasion. In a new-born babe with a discharging eye, one of the first cares, therefore, should be to eliminate this possibility. It may be accomplished by placing a firm binder around the child, extending from the neck to below the waist, fastened in the back and covering in the hands and arms. As an additional precaution, the fingernails should be closely cut so that if the child "breaks away," as they sometimes will, the chances of corneal injury may be minimized. Another occasional cause of trauma is probably the fingernails of those caring for the child. The carefully-trimmed, pointed, well-kept fingernail is not the fingernail to be worn by the doctor or the nurse having to do with diseases of the eye and this applies most emphatically to a disease like ophthalmia neonatorum where the corneal resistance is not only often lessened but the eye bathed in a copious, purulent discharge. Fingernails as short as possible should be the rule for all concerned in the care of this disease. The nurse or attendant must also be cautioned against touching the cornea when removing the discharge from the lids, of not trying to wipe the eye out, that is, passing cotton or anything else between the lids, and against using too great force in dropping solutions into the eye. It is, of course, of the greatest importance to keep the lids from sticking together by the use of some simple ointment like vaseline applied to the lid-borders often enough to make sure of a perfectly free drainage from the conjunctival sac.

I wish now to refer briefly to the preventive remedies that may be employed in this disease. The advisability of passing laws requiring the use of prophylactics in all new-born babes has, of course, been seriously considered. If such laws could be enforced, if the remedies were properly prepared, of proper strength and if intelligently used, there would be few cases of ophthalmia neonatorum. There are, undoubtedly, a large number of intelligent medical men, men who could be counted upon to place a case of this disease under the care of an oculist at the earliest possible moment, whom it would, nevertheless, be difficult to convince that prophylactic treatment is necessary or advisable among the so-called better classes of their patients where ophthalmia neonatorum is so rarely met with. It is among the poorer classes, in our larger cities especially, the poor who are likewise ignorant, careless and unclean, that this disease is especially liable to occur. They neglect themselves and are often under the care of midwives and medical men who are incompetent and also negligent. I doubt very much if such a law could be enforced with any degree of success if it existed at the present time and under present conditions. The State law requiring that prophylactic remedies be furnished free is a movement in the right direction, however, and if these remedies can be sent to all practitioners at regular intervals, the importance of their use will gradually become impressed upon the profession and will become more general. There is, naturally, some difference of opinion among oculists as to whether nitrate of silver or one of the more recently introduced silver salts is best adapted for use among the general profession. In a previous paper[1] I have already expressed my preference for one of the newer silver salts. In the first place, a non-irritating solution like argyrol (25% sol.) will, I believe, if recommended, be much more generally used than the nitrate of silver for the simple reason that it is non-irritating. The very name—nitrate of silver—has come to suggest an irritant and caustic. A one

[1] "The Newer Silver Salts as Compared with Silver Nitrate in the Treatment of Ophthalmia Neonatorum," Frederick E. Cheney, M.D. Boston Med. and Surg. Jour., March 4, 1909.

or two percent. solution is not, of course, caustic, and no serious results following the instillation of one or two drops into the eye should be looked for. It is, however, an irritant and may cause a catarrhal inflammation of greater or less intensity. Many men who have had little experience in the treatment of diseases of the eye will hesitate to drop into the apparently healthy eye of a new-born babe a solution that he knows to be an irritant and that may give rise to a conjunctivitis. I am convinced from long experience in the use of a 25% solution of argyrol that it is a valuable remedy in the treatment of ophthalmia neonatorum and it should prove an equally valuable remedy, if properly and *freshly* prepared, in its prevention. The fact that it is non-irritating will, I believe, make it a remedy much more acceptable to the general practitioner and its general recommendation should result in a more universal prophylaxis than can be hoped for in advising the use of a recognized irritant like silver nitrate. The comparative prophylactic value of these two remedies is a question which must, of necessity, be under discussion for some time to come. In this connection, the statistics presented by Mr. Sydney Stephenson in his Middlemore Prize Essay[2] may be again quoted together with a brief analysis made by me in the previous paper already referred to:

THE PERCENTAGE OF OPHTHALMIA NEONATORUM DEVELOPING AFTER THE USE OF:

	PERCENT.	CASES.
Silver nitrate, 2% solution	0.703	76,452
Silver nitrate, weaker than 2% solution	0.423	36,132
Argyrol	0.25	6,984
Protargol	0.027	7,383

"The superior value of argyrol and protargol is certainly suggested by these statistics although the fact cannot be ignored that the number of cases in which nitrate of silver has been used greatly exceeds those of the newer silver salts.

"A point worthy of consideration and remarked upon by Mr. Stephenson is that the results are considerably better where nitrate of silver weaker than a two per cent. solution was used than in the series where the solution was two per cent. As a reasonable explanation of this point, I would suggest the following: If silver nitrate causes an inflammation, the conditions are much more favorable for the development of ophthalmia neonatorum, if any gonococci remain undestroyed, than they would be if an inflammation were not present. If silver nitrate is to be used, therefore, a weaker, less irritating solution than a two per cent. is, as these statistics suggest, to be preferred. It is also to be noted that the per cent. of the ophthalmia neonatorum is much smaller in the series of cases treated with protargol than with argyrol. Accurate comparisons cannot be formed as to the comparative value of the two remedies from these statistics, however, for the reason that while protargol was generally used in a 10 per cent. or 20 per cent. solution, the strength of argyrol is not given in the larger proportion of cases and in 1334 (the only cases where the strength is given) was but four per cent."

In conclusion it may be said that the work being done in Massachusetts by the various State organizations and allied workers is worthy of the sincerest approval and appreciation of the medical profession and the community. I believe, however, that still more might be accomplished if certain suggestions made in this paper, and which I will briefly restate could be adopted.

1. The sending of a "special notice to parents to prevent blindness in children,"—similar to the notice sent out by the Boston Board of Health,—by every board of health in the state upon the receipt of birth notices. A law requiring the sending out of such a notice would be an extremely valuable measure.

2. A law requiring all cases of ophthalmia neonatorum to be placed under the care of an oculist or at least the supervision of an oculist within a certain time after the symptoms of the disease are first noticed.

3. Printed matter, as to the recognition of the disease, immediate care and protection of the eyes, laws relating to the disease. etc. (the information now furnished by the state organizations with some addition) sent to all doctors, nurses, and midwives, at regular and frequent intervals, and over a long period of time. And,

4. I may add that while the use of a one per cent. solution of nitrate of silver cannot be regarded as objectionable, a more universal prophylaxis against this disease would probably result if the use of a non-irritating remedy like argyrol (25% sol.) were more generally recommended and encouraged.

[2] "Ophthalmia Neonatorum with Especial Reference to Its Causation and Prevention," Sydney Stephenson, M.B., C.M. The Middlemore Prize Essay for 1907.

TYPHUS FEVER (BRILL'S DISEASE) AT THE MASSACHUSETTS GENERAL HOSPITAL IN TEN YEARS (OCT. 1, 1902 TO OCT. 1, 1912).

BY ROGER I. LEE, M.D., BOSTON,

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BRILL,[1], [2], [3], [4], of New York, in 1898 first described 17 cases of a disease of unknown origin, simulating typhoid fever. From 1896 to Dec. 1, 1910, he was able to collect 255 cases of this fever, which was generally known as Brill's Disease. Louria[5] of Brooklyn, Ziegel[6] of New York, Lewis[7] of Philadelphia and Patek[8] of Milwaukee have also reported cases of this disease. The disease occurred usually in Russian immigrants. Only two of Brill's cases occurred in the same house. It did not seem to be highly infectious. All epidemiologic studies were fruitless. The characteristics of the disease were sudden onset, often with a chill, a continued fever of 12 to 14 days' duration, with termination by crisis or rapid lysis. On the fifth or sixth day a charac-

teristic rash appears, described by Brill as follows: "The eruption on the fifth or sixth day is profuse but discrete, consisting of a maculopapular rash, dull red in color, erythematous in character; the spots are irregular in outline, though occasionally ovoid, 2 to 4 mm. in diameter." "Under pressure a spot may be caused to fade, but it cannot be obliterated." "The eruption is sometimes distinctly hemorrhagic." "It appears on the trunk and extremities, even rarely on palms and soles." "It is never as profuse as measles, sometimes even being scanty." "It is permanent until the end of the disease and does not appear in crops, but develops and reaches its full efflorescence within 24 hours after the first spot appears." There is usually a leucocytosis of 9,000 to 11,000. Cultural and agglutination tests are consistently negative. Headache, fever and malaise are the prominent symptoms. Convalescence is rapid.

The reported cases of Brill's disease showed only one death, reported by Brill. The autopsy showed only congestion and cloudy swelling. Cultural and histological examinations were negative.

In 1911 Freidman[9] of New York, who had been in active practice in Western Russia for six years and had seen typhus fever, concluded that Brill's symptom complex was identical clinically with mild and moderately severe cases of typhus fever.

In the meantime some officers[10], [11] of the Public Health and Marine Hospital Service were investigating tabardillo or Mexican typhus fever. They had shown that the typhus fever of Mexico was transmitted by the louse. Similar results had been reported by Nicolle, Comte and Conseil[12] in regard to the transmission of typhus fever of Europe from monkey to monkey by the body louse. Those familiar with Mexican typhus fever were much impressed with the resemblance between Brill's disease and the Mexican typhus fever. It remained for Anderson and Goldberger[13] in 1912 to establish the identity of the so-called Brill's disease and typhus fever by immunity experiments in monkeys.

Brill[14] in 1912 was not convinced of the identity of the so-called Brill's disease, European typhus fever and Mexican typhus fever, but the evidence in favor of this identity seems reasonably conclusive.

The unexpected presence of a disease with such historical importance in the old world and in the early history of the United States as typhus fever, is of great interest. Typhus fever has always been regarded as a very dread and infectious disease. Small epidemics of typhus fever were recognized in San Francisco in 1897 and in Baltimore in 1901. Earlier outbreaks were reported in New York as late as 1892 and in Philadelphia in 1883. The fact was apparently overlooked in the alarm over scattered epidemics in the United States that mild and sporadic cases which did not seem to be very infectious had long been recognized in Europe.[15]

While cases have been reported in New York, Brooklyn, Philadelphia and Milwaukee, there has been no attempt, as far as I know, to determine if typhus fever has been present in the sporadic form in Boston. Consequently, the medical records of the Massachusetts General Hospital were subjected to a critical review for the ten years, Oct. 1, 1902, to Oct. 1, 1912. All cases clinically diagnosed as typhoid fever and all cases of fever without definite etiology were studied. There were 1,404 cases of continued fever with a presumable duration of more than seven days in which the diagnosis was either typhoid fever or some unexplained fever.

TYPHOID FEVER.

Of the cases studied, 1,306, or 93 per cent., were shown to be typhoid fever, either by the Widal reaction or the recovery of the typhoid bacillus from the patient. Blood cultures were not taken in the early cases but were positive in 203 cases. The Widal often appeared late in this series of cases and in one case was present only after three and one-half weeks of normal temperature. It is of a good deal of interest that 15 cases showed a persistently negative Widal reaction during their hospital residence, but gave the typhoid bacillus in culture from the blood. There were 29 cases, not included as proven cases of typhoid fever, but diagnosed as such, which showed a persistently negative Widal. In some of the cases blood cultures were taken and were negative. These cases ran a course typical of typhoid fever. Some of these cases may have been typhoid fever with a late Widal, others may belong to the para-typhoid group. At any rate, these cases might well be classified with the typhoid group.

PARA-TYPHOID FEVER.

There were 15 cases of para-typhoid fever. The diagnosis was made by blood culture in 9 and by the agglutination test in 8. It is noteworthy that the blood of only two of the cases with a positive culture agglutinated one of the three stock para-typhoid cultures. It is reasonable to suppose that some of the cases with a course like typhoid fever, which gave a negative Widal and in which blood cultures were not taken, may have been cases of para-typhoid fever. Hultgen[16] of Chicago found 28 per cent. of 32 cases of typhoid-like fevers to be para-typhoid. In the cases from the literature, however, the average relation of para-typhoid to typhoid fever was 1 to 15. In this series it is 1 to 86.

There were 2 cases of general colon infection and one case of alkaligenes infection.

TYPHUS FEVER.

There were 28 cases which corresponded fairly well to Brill's description of the disease which commonly bears his name and which is now believed to be a mild form of typhus fever.

Blood cultures were taken and were negative in 13 of these cases. Twenty-seven of the 28 cases gave a persistently negative Widal throughout their hospital stay. One case, after three injections of typhoid vaccine and after four negative Widals, developed a positive Widal late in convalescence. In 16 cases agglutination reactions with two or more strains of para-typhoid bacilli were performed and were constantly negative.

Years. The cases were scattered over the years 1903 to 1912.

TABLE I.

1903, 2 cases	1908, 1 case
1904, 4 cases	1909, 1 case
1905, 1 case	1910, 3 cases
1906, 2 cases	1911, 7 cases
1907, 5 cases	1912, 2 cases

Months. As in typhoid fever, the cases are distributed through the year, but 17 of the 28 cases occurred in the four months, June to September.

TABLE II.

Jan., 2 cases	July, 2 cases
Feb., 0 cases	Aug., 3 cases
Mar., 1 case	Sept., 7 cases
Apr., 1 case	Oct., 2 cases
May, 1 case	Nov., 3 cases
June, 5 cases	Dec., 1 case

Sex. The disease was equally divided in men and women.

Age. Twenty-one of the 28, or 75 per cent., occurred between the ages of 21 and 40.

TABLE III.

1 to 10 years, 1 case	31 to 40 years, 9 cases
11 to 20 years, 2 cases	41 to 50 years, 3 cases
21 to 30 years, 12 cases	Unknown age, 1 case

Nativity. As in Brill's series, 62 per cent. were in persons born in Russia. Only 3 of the 28 cases were born in America.

TABLE IV.

Russia, 18 cases	Poland, 2 cases
Ireland, 3 cases	Germany, 1 case
United States, 3 cases	Austria, 1 case

The study of the residences of these cases showed no cases in the same house and only two cases in the same street. The houses were scattered through Boston and the suburbs. They were all in the so-called tenement districts. While a large number of the patients were employed in some work on clothing, it is to be remembered that the Russian Jews, who comprise 62 per cent. of the cases, are very largely employed in the clothing industry. As in Brill's cases, the records do not show any constant infection with lice.

Onset. The onset was sudden in 22 cases with a definite chill in 5 cases and chilliness in 8 cases. The onset was gradual in 5 and unknown in 1 case.

TABLE V.

Sudden, 22 cases	Gradual, 5 cases
Chill, 5 cases	Unknown, 1 case
Chilliness, 8 cases	

Duration. The duration varied from 7 to 19 days, with one case unknown. Twenty-one of the 28 cases had a duration of 9 to 13 days, inclusive.

TABLE VI.

7 days, 1 case	13 days, 2 cases
8 days, 2 cases	14 days, 1 case
9 days, 8 cases	16 days, 1 case
11 days, 6 cases	19 days, 1 case
12 days, 5 cases	Unknown, 1 case

Termination. The termination was more or less abrupt in every case. There was a crisis in 15 cases, rapid lysis in 9 cases and a lysis of not longer than 72 hours in 4 cases. There were no deaths, relapses or complications in this series.

TABLE VII.

Crisis, 15 cases	Lysis, 4 cases
Rapid lysis, 9 cases	

Rash. A rash was present in every case and its extent is seen in table 8. The records usually speak of the rash as rose-spots, but there is often a note that the rash is very profuse for typhoid or that it does not seem like the usual rose-spots of typhoid fever. In 2 cases the skin condition was described as very puzzling and the skin consultant considered a drug eruption or syphilis.

TABLE VIII.

Scanty, 7 cases	Extensive, 8 cases
Abundant, 13 cases	

Spleen. The spleen was palpable in 10 and not palpable in 18 cases.

Leucocytes. The leucocyte count varied between 4,100 and 23,000, but 17 out of the 28 cases showed a white count of over 10,000.

TABLE IX.

Lowes, 4,100	10 to 15,000, 9 cases
Highest, 23,000	15 to 20,000, 7 cases
Under 500, 3 cases	Over 20,000, 1 case
5 to 10,000, 8 cases	

Clinical Diagnoses. The clinical diagnosis which stands on the record was either Brill's disease or typhus fever in 6 cases, all in the last two years. It is rather striking that before the acceptance of Brill's disease as a separate entity, this disease was as a rule regarded as distinct from typhoid fever. In only 4 of the 28 cases was typhoid fever definitely diagnosed in the record. Of the 22 cases not diagnosed as typhus fever or Brill's disease, 13 were not definitely diagnosed and 5 more were recorded as grippe or influenza.

TABLE X.

Brill's or Typhus, 6 cases	Influenza, 4 cases
Typhoid, 4 cases	Pneumonia, 1 case
Typhoid?, 4 cases	Grippe, 1 case
Fever, cause? Acute infection Febricula } 7 cases.	Brill's? or typhoid?, 1 case

The following case of typhus fever is typical of the series and is reported in detail:

Hospital No. 184070, West Medical. A housewife of 47, born in Russia, living in Cambridge for 10 years, entered, July 28, 1912, the service of Dr. R. C. Cabot, under my charge. She has been in this country for 10 years.

Family and *Past Histories.*—Negative.

Present Illness.—On July 18 had a chill. She has been in bed since with fever and headache, which steadily increased up to the time of entrance on July 28. Anorexia, constipation, no nose-bleeds.

Physical Examination.—She was fat, pupils and reflexes were negative; visceral examination was negative. "Over the trunk, both front and back, and somewhat over the arms are many level, or slightly raised macules, circular; the edges of some are sharply defined, of others diffuse. Some are pinkish, others red; some disappear slightly on pressure, others do not." The spleen is not felt. T. 102, P. 100, R. 20. Whites, 17,000. Blood cultures showed no growth. Widal reaction persistently negative. Cultures from the stool on Endo's media negative. Urine negative. Sharp lysis on July 30. The temperature was normal on July 31 and thereafter. Convalescence was rapid and uneventful. The rash disappeared soon after the temperature became normal. She was discharged well 10 days after entrance.

UNCLASSIFIED CASES.

In this study there were, in addition, 23 cases of unclassified fever. Of these, 3 showed considerable similarity to the typhoid group and might perhaps be classified clinically as typhoid or para-typhoid fever. There were four cases of continued fever which did not resemble typhoid fever or typhus fever in their course and which cannot be classified.

There were 16 cases, which ran a course, fairly typical of typhus fever, with sudden onset, rapid lysis or crisis and with a duration of 9 to 17 days. In all of these 16 cases the rash was either extremely scanty or absent. All had negative agglutination tests for the typhoid and para-typhoid bacilli and the blood cultures were negative when taken. Typhoid or para-typhoid cannot definitely be excluded as one finds occasionally in this series true typhoid fever with seemingly sudden onset and more rarely with termination by crisis or lysis. It has been already shown in this study that the Widal reaction may be absent during the hospital residence of a true case of typhoid fever. Moreover, the diagnosis of para-typhoid fever can often be made only by positive blood cultures.

The leucocyte count in these 16 cases showed 7 cases below 9,000, 9 cases above 9,000 and 5 cases over 14,000. In a small percentage of cases, the count in typhoid fever is over 10,000. Excluding cases in children, in the absence of any obvious complication, the highest count in this series of typhoid fever is 13,000. In these unclassified cases it is of considerable interest that a little over 43 per cent. were born in Russia, thus resembling somewhat the statistics of the cases of typhus fever in which 62 per cent. were born in Russia. One case was born in Italy, 2 in Ireland and 6 in the United States. It is possible that some or all of these cases are typhus fever without a rash. But, while typhus fever does occur without a rash, the diagnosis in sporadic cases is rarely justifiable. As long as the etiologic agent of typhus fever is unknown, there will of necessity be confusion in differentiating by clinical means typical cases of typhus fever from other fevers. These 16 cases may be typhus fever without a rash, may belong to the typhoid and para-typhoid group, or, may be another unrecognized fever.

SUMMARY.

In the past ten years typhus fever in a mild and sporadic form has constantly been present in Boston and its vicinity as seen by the records of the Massachusetts General Hospital. It occurs, according to the Massachusetts General Hospital statistics, in about the ratio of one case of typhus fever to 47 cases of typhoid fever. As the diagnosis has to be made upon clinical signs only, it is possible that there are other cases in this series which cannot now be definitely diagnosticated. There occurred in the hospital series another group of cases which roughly simulated typhus fever in everything but the presence of the rash, which cannot now be classified. The clinical course and laboratory findings in typhus fever are so distinctive that there is little trouble in making the diagnosis in typical cases.

This study throws no light upon the epidemiology of typhus fever, except that the occurrence of the disease in persons of Russian nativity strongly suggests that the disease was originally imported from Russia.

This study also emphasizes the importance of blood cultures, inasmuch as there were cases of typhoid fever with a negative Widal in which the positive diagnosis was only made by blood cultures. Moreover, the diagnosis of para-typhoid fever in this series was made possible by blood cultures alone in the majority of instances.

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TABLE OF TWENTY-EIGHT CASES DIAGNOSED AS TYPHUS FEVER SHOWING A SACHUSETTS GENERAL HOSPITAL FOR THE PERIOD

	REFERENCES.	SEX.	AGE.	NATIVITY.	YEARS IN U. S.	RESIDENCE.	OCCUPATIONS.	MONTH.	YEAR.	ONSET.
1.	576-164	F.	28	Russia	?	North End Boston	Housewife	Jan.	1903	Sudden Chill
2.	585-18	M.	30	Poland	?	Roxbury	Salesman	June	1903	Sudden
3.	604-50	F.	25	Ireland	?	S. Boston	Wife	June	1904	Sudden Chilliness
4.	604-60	F.	48	Russia	?	West End Boston	Wife	June	1904	Gradual
5.	611-140	F.	22	Russia	?	North End Boston	Shirtwaist-maker	Sept.	1904	Sudden
6.	613-160	M.	21	Poland	?	Chelsea	Teamster on laundry wagon	Sept.	1904	Sudden No chill
7.	626-164	F.	25	Russia	9	West End Boston	Housewife	Sept.	1905	Sudden Chilliness
8.	641-58	F.	19	Russia	1	Chelsea	Shirt-maker	Apr.	1906	Sudden No chill
9.	648-159	F.	22	Russia	5	West End Boston	Seamstress	Aug.	1906	Sudden
10.	675-147	M.	25	Russia	1	West End Boston	Tailor	June	1907	Sudden? Chill?
11.	679-239	F.	37	Ireland	?	Brookline	Cook	Sept.	1907	Gradual Chilliness
12.	681-31	M.	27	Russia	?	Cambridge	Harness-maker	Sept.	1907	Sudden Chilliness
13.	654-9	F.	34	Russia	?	South End Boston	Tailoress	Oct.	1907	Gradual
14.	687-55	M.	6	U. S.	6	West End Boston	School	Nov.	1907	Sudden
15.	713-125	M.	34	Russia	7	West End Boston	Shirt-maker	Nov.	1908	Sudden No chill
16.	738-207	F.	18	U. S.	18	E. Boston	Stenographer	Sept.	1909	Sudden Chilliness
17.	756-113	M.	30	U. S.	30	West End Boston	Waiter	Mar.	1910	Gradual
18.	771-17	F.	25	Russia	1	Roxbury	Wife	July	1910	Sudden Chilly
19.	768-295	M.	22	Russia	?	West End Boston	Lawyer	Aug.	1910	Sudden Chilliness
20.	782-127	M.	39	Austria	11	Malden	Salesman	Jan.	1911	Sudden
21.	792-223	M.	40	Ireland	16	Arlington	Brakemen	June	1911	Gradual
22.	811-217	M.	28	Russia	?	Winthrop	Peddler, clothes	Aug.	1911	Sudden No chill
23.	804-49	M.	41	Germany	10	Roxbury	Salesman	Sept.	1911	Sudden Chill
24.	806-29	M.	33	Russia	?	Norwood	Junk dealer	Oct.	1911	Sudden Chill
25.	808-109	F.	24	Russia	?	West End Boston	Housewife	Nov.	1911	Sudden
26.	810-199	M.	39	Russia	?	Roxbury	Peddler	Dec.	1911	Sudden Chill
27.	W. M. 182922	F.	33	Russia	?	Chelsea	Housewife	May	1912	Sudden Chilliness
28.	W. M. 184070	F.	47	Russia	10	Cambridge	Housewife	July	1912	Sudden Chill

* x = Spleen palpable, 0 = Spleen not felt.
* x = Positive, 0 = Negative, — = Not done.
§ Case with a positive Widal in convalescence after the injection of typhoid vaccine.

PERSISTENTLY NEGATIVE WIDAL, TAKEN FROM THE RECORDS OF THE MAS- OCT. 1, 1902, TO OCT. 1, 1912, BY DR. ROGER I. LEE.

TERMINATION.	DURATION.	WHITES.	RASH.	*SPLEEN.	CLINICAL DIAGNOSIS.	* WIDAL.	* BLOOD CULTURE.	* PARA-TYPHOID AGGLUTINATION.
Sharp lysis	12 days	6,300	Abundant	0	Grippe	0	—	—
Crisis	11 days	12,000	Few	x	Influenza	0	—	—
Crisis	11 days	9,000	Abundant	x	Typhoid?	0	—	—
Crisis	16 days	15,600	Few	0	Typhoid?	0	—	—
Lysis	9 days	10,000	Few	0	Influenza	0	—	0
Crisis	12 days	9,000	Extensive	x	Typhoid fever	$\frac{1}{1000}$x	—	—
Sharp lysis	11 days	15,000	Few	0	Typhoid?	0	—	—
Lysis	9 days	9,500	Abundant	0	Fever cause =?	0	—	0
Crisis	12 days	12,400	Few	0	Influenza	0	—	—
Crisis	? days	18,000	Abundant	0	Typhoid fever	0	—	0
Crisis	9 days	4,100	Abundant	x	Typhoid fever	0	—	0
Crisis and Pseudo-crisis	8 days	4,600	Abundant	x	Typhoid?	0	—	0
Lysis	9 days	9,200	Extensive	x	Typhoid fever	0	—	—
Sharp lysis	8 days	19,000	Abundant	0	Pneumonia?	0	—	—
Crisis	12 days	6,000	Abundant	x	Fever cause =?	0	0	0
Crisis	9 days	4,600	Extensive	0	Acute infection	0	—	—
Sharp lysis	11 days	11,000	Abundant	0	Influenza	0	0	0
Lysis	7 days	15,000	Abundant	0	Acute infection	0	0	—
Crisis	13 days	13,000	Extensive	0	Typhoid? Brill's?	0	0	0
Crisis	11 days	12,000	Abundant	0	Acute infection	0	0	0
Crisis	19 days	16,000	Extensive	0	Acute infection	0	0	0
Rapid lysis	9 days	10,000	Few	x	Fever cause =?	0	0	—
Rapid lysis	12 days	12,000	Abundant	0	Brill's disease	0	0	0
Rapid lysis	11 days	13,500	Abundant	0	Brill's disease	0	0	0
Crisis	9 days	7,000	Abundant	0	Brill's disease	0	0	0
Sharp lysis	14 days	9,500	Few	x	Brill's disease	0	0	0
Crisis	9 days	23,000	Abundant	x	Brill's disease	0	0	0
Sharp lysis	13 days	17,000	Extensive	0	Typhus fever	0	0	0

AN ANATOMIC EXPLANATION OF MANY OF THE CASES OF WEAK OR PAINFUL BACKS, AS WELL AS OF MANY OF THE LEG PARALYSES.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

IN the two articles which have been published by the writer upon the sacro iliac joints,[1] and in the article upon the lumbo sacral joint,[2] as well as the articles upon hypertrophic arthritis of the spine[3] and the rheumatoid diseases, mention has been made of conditions which frequently lead to pain or weakness referred to the back, as well as at times to much pain, numbness, or complete paralysis of the legs and buttocks.

The justification for the present communication lies in the fact that with a larger experience and a greater understanding of the anatomic formation of the body, not only is it evident that these conditions exist, but that some of the peculiarities which have been described in these articles are much more common than was originally supposed, and that the combination of some of these conditions explains symptoms which had formerly not been understood and consequently made relief difficult or uncertain. It is the hope that this communication may serve to explain some of the features not before understood, and also to correlate the knowledge contained in these previously mentioned papers, so that the confusion which may result from the treatment of a single feature without its commonly associated other features, may be removed.

PELVIC JOINT OR SACRO ILIAC LESIONS.

That disease, strain, or weakness of the joints of the pelvic girdle, with at times displacement of the bones, especially at the sacro iliac juncture, takes place, there can be no question. (Figs. 1 and 2.) That such conditions are common, the knowledge of the anatomic formation of the part should make understandable. The flat surfaces of the articulation with their vertical or oblique axes show that there can be but little support from the bones themselves, and that their stability must depend upon the soft structures, the muscles and ligaments. Of these, the muscles are, of course, of chief importance, since without their aid the ligaments cannot for long retain their tone.

That patients can usually be relieved by supports, such as belts, straps, braces, and exercises, in case the bones are not misplaced, there is also no question. That this same class, in case the bones are misplaced, find relief after the bones have been replaced by belts, straps, braces, and exercises, is equally certain. There are a certain number of these cases, however, which have not been relieved by such methods of treatment, and the reason for this has not been understood until recently. In the study of the proper relationship of the parts as affected by good and bad poise,[4] a better understanding of the function of the pelvic joints, together with the appreciation that their stability is almost wholly dependent upon the tone of the muscles (which can only be maintained by proper poise), has made it possible many times to correct postures of strain and to restore muscle balance so that normal instead of harmful function could result. Even with this knowledge, however, certain cases of backache in which undoubted sacro iliac strain existed were formerly not satisfactorily relieved. With an understanding of the lumbo sacral joint with its many peculiarities and the frequent resulting unnatural strain to the sacro iliac joints, many of the cases of sacro iliac disturbance not controlled by the usual treatment become understandable, and since the lumbo sacral joint is so much concerned with the sacro iliac joint function, its special peculiarities must be considered at this time.

LUMBO SACRAL ARTICULATION.

Transverse Processes.—In the article entitled, "The Lumbo-Sacral Articulation. An Explanation of Many Cases of Lumbago, Sciatica, and Paraplegia,"[5] attention was called to the fact that at times the transverse processes upon the last lumbar vertebra are broader than normal, and that occasionally they are articulated with the top of the sacrum. It was appreciated at that time that this peculiarity might lead to strain or undue leverage upon the lumbo sacral joint, but it was not appreciated at that time the extent to which this leverage might strain or injure the sacro iliac joint, nor was it appreciated that many times the transverse processes of the last lumbar vertebra are so long and broad that they not only articulate with or press against the top of the sacrum, but that they also press against or articulate with the wing of the ilium, with resulting weakness of the sacro iliac point. It is by appreciating this that the confused symptoms of lumbo sacral and sacro iliac joint lesions can be understood.

In that article the fact that these peculiarities in the form of the last lumbar transverse process exist was mentioned, but the great frequency of such formation was not at that time appreciated. In the further study of a considerable number of patients and a large number of spines the variation in the shape and size of these parts is shown to be so great as to be a matter of much surprise.

The variation from the normal (Fig. 3) is not only very common, but the special peculiarity of shape of the processes also varies. It may simply be somewhat larger in all its dimensions (Fig. 4) and be of little importance except

[1] BOSTON MED. AND SURG. JOUR., May 25 and June 1, 1905. Journal A. M. A., August 31, 1907. Goldthwait and Osgood.
[2] BOSTON MED. AND SURG. JOUR., March 16, 1911.
[3] BOSTON MED. AND SURG. JOUR., Dec. 26, 1895; Aug. 10, 1899; March 20, 1902.
[4] BOSTON MED. AND SURG. JOUR., Dec. 9, 1909.
[5] BOSTON MED. AND SURG. JOUR., March 16, 1911.



Fig. 1—Note the twist in the whole pelvis, the separation of the ilium from the sacrum on the right side, with the marked elevation of the ilium on that side. Marked inclination of the spine as the result of tip of the sacrum.



Fig. 3—Practically normal spine with slender transverse processes. A female pelvis.



Fig. 2—The marked distortion in the shape of the pelvis, the separation between the sacrum and ilium upon the right side, with the elevation of the ilium upon that side; the spine of the ischium on the right side showing inside the pelvic line much more conspicuously than on the left.



Fig. 4—Short, thick transverse processes on the last lumbar vertebra, the sacrum set well between the wings of the ilia. A crescentic-shaped articular process on the left side (a.) between the fourth and fifth vertebrae, and a flat articular process on the right side (b.) at the same level.



Fig. 5

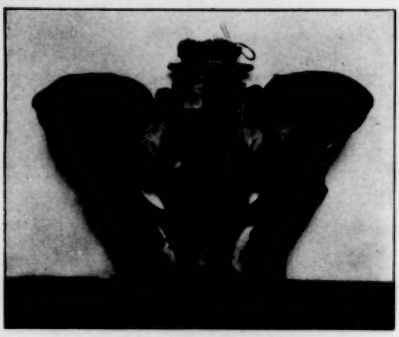


Fig. 6



Fig. 7—Showing the articular surface upon the top of the sacrum at the sides with which the transverse process of the vertebra above articulated.



Fig. 8—A lumbo sacral transverse articulation on the left side with a short thick transverse process on the right, with undoubtedly a bursa between the sacrum and process upon that side. The articular processes at the lumbo sacral and between the fourth and fifth lumbar of the flat type, the crescentic type showing in the articulations above.



Fig. 9—The lumbo-sacral transverse articulation upon the right side; also an articulation of the tip of the transverse process with the wing of the ilium. Note the hypertrophic arthritic deposit just below the angle of the transverse process as the result of continued strain.

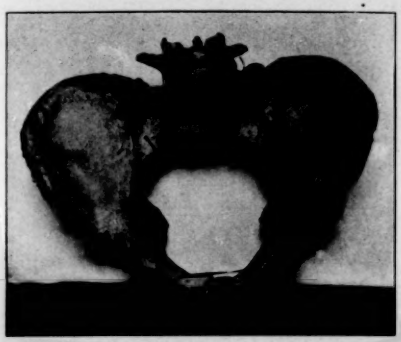


Fig. 10—Another view of same pelvis as Fig. 9, showing the articulation of the transverse process with the ilium more perfectly.



Fig. 12—The complete fusion of the last lumbar vertebra with the sacrum. The articular processes are of the crescentic type, except, possibly, the one on the right at the junction of the sacrum with the spine.

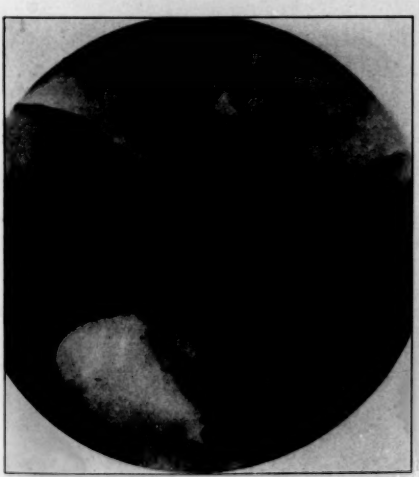


Fig. 11—Fusion of the transverse process of the last lumbar with the sacrum on the left side, with the forked and broad transverse process on the left in the vertebra above, with a short, broad, non-fused transverse process on the last lumbar vertebra on the right side, with a long, slender transverse process on the right side of the vertebra above. The ilium on the left side is larger than on the right. The articular processes are of the flat type in all the joints shown.

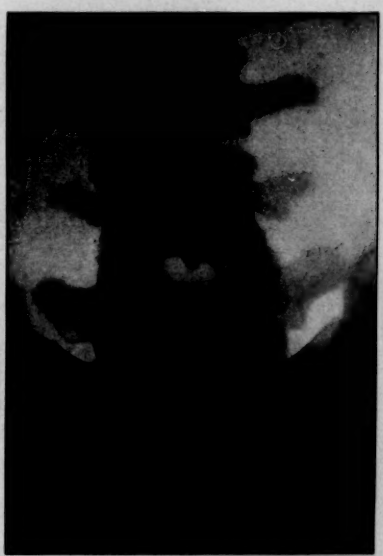


Fig. 13—The broad, fin-shaped transverse process on the last lumbar vertebra, with a similar type, less marked, in the vertebra above. The flat articular processes at both the lumbo sacral and the articulation between the fourth and fifth vertebrae, with the crescentic articulations above.



Fig. 14—Partial fusion of the last lumbar vertebra with the sacrum. Complete fusion of the sacrum with the ilium, with fusion of the transverse process of the last lumbar vertebra with the crest of the ilium.

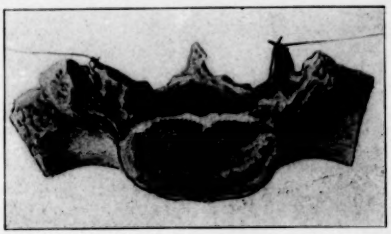


Fig. 17—Showing the crescentic type of articular process upon the right side, the flat type upon the left.

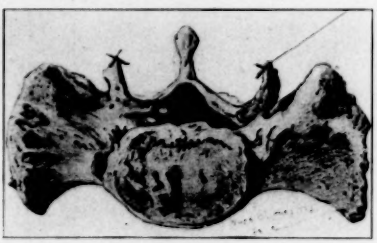


Fig. 15—Showing the crescentic type of articular process.



Fig. 18—The short thick transverse processes on the last lumbar vertebra, with the flat articular processes on the right side (a.) of the lumbo sacral joint, the joint between the fourth and fifth vertebrae, and between the third and fourth vertebrae, the crescentic articulation showing in all the articulations on the left side.

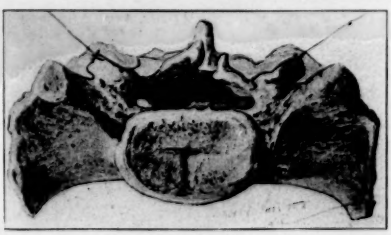


Fig. 16—Showing the flat type of articular process.

as the body is bent to the side, at which times the process impinges against the top of the sacrum much more easily than normal, and if carried far enough serves as the fulcrum for straining the lumbo sacral joint. It may be still larger, but evenly and bilaterally enlarged, so that not only does the process impinge against the top of the sacrum in side bending, but in drooping the body (Fig. 5) the increased lordosis results in the crowding of the processes against the top of the sacrum. In such posture, since the transverse and articular processes are behind the body of the vertebra, the weight of the individual must, to a greater or less extent, be taken off the body of the vertebra and thrown upon the transverse processes and the tip of the articular processes. With the transverse process, if this is long continued, a bursa forms between the tip of the process and the sacrum, and when once developed is capable of all of the phenomena of inflammaton with resulting symptoms, as exists in bursae in any other part of the body. In Fig. 6 when freshly dissected a complete bursa existed at this point on both sides. This was exhibited as a wet specimen at the meeting of our association held in Cincinnati last year.

LUMBO SACRAL TRANSVERSE ARTICULATION.

Not only are these types common, but it is also a common thing to have the peculiar formation carried further and a true articulation exist between the tip of the transverse process and the top of the sacrum. This articulation is so frequent and is so distinct that it must be reckoned with in the treatment of joint conditions, and the name *"lumbo sacral transverse articulation"* was given to it by the late Professor Thomas Dwight, this representing one of the last things of an anatomic nature performed by him before his death.

The lumbo sacral transverse articulation may exist upon both sides (Fig. 7) or upon only one (Fig. 8), but if it exists upon both sides the two sides are rarely the same, one side being usually larger than the other. In Fig. 8 the articulation exists upon one side, while a bursa was present between the tip of the transverse process and the top of the sacrum upon the other side.

In Figs. 9 and 10 not only is the articulation between the transverse process and the sacrum evident, but the articulation of the tip of the process with the ilium is shown, and the evidence of the resulting continued strain upon the sacro iliac joint which such a mechanical formation would represent is shown by the hypertrophic arthritic process which has formed in the anterior ligament of the sacro iliac joint upon that side. Even where the true lumbo sacral transverse articulation does not exist, but where simply the bursa is present the increased strain of the sacro iliac joints which, with the necessary limitation of the low spinal motions, must result, is at least suggested by a similar hypertrophic arthritic change in the anterior ligament of the sacro iliac joint in Fig. 6.

The next stage of anatomic peculiarity of the transverse process at the lumbo sacral junction apparently represents the fusion of the transverse process with the sacrum. This may exist only upon one side (Fig. 11), or may represent a complete fusion of the bones (Fig. 12), and the part which represents the upper part of this fusion may be the upper sacral vertebra, which has been partially lumbalized, or the last lumbar vertebra, which has become sacralized. This special feature has been admirably described by Böhm. (Stuttgart, 1907. F. Enke.)

In the broadening of the transverse process the development seems to follow definitely the direction of the lumbo sacral ligament or the ilio lumbar ligament or both. The result of this is shown in the common formation of these peculiar processes resembling in outline the tail fin of the fish (Figs. 13 and 8 and 3). In the hypertrophic arthritis which frequently leads to the fusion of these bones, as well as of the sacro iliac joints (Fig. 14), the osseous deposit takes place first along these ligaments.

In the consideration of the relations of the transverse process of the last lumbar vertebra it should be remembered that at times the wings of the ilia are so high or the sacrum is placed so low that the transverse process next above the last may also press against the ilium in lateral motion, with resulting symptoms, and not only this but the formation may be such that the processes of the two vertebrae may be involved upon one side, while only one may be involved upon the other (Fig. 11).

ARTICULAR PROCESSES.

That which has thus far been said in regard to the lumbo sacral articulations has had to do chiefly with the transverse processes, but in any consideration of this region the formation of and effect of motion or posture upon the articular processes is of much importance. If, for instance, the body is drooped so that there is an increase of the lumbar curve, the weight is received in part upon the tip of the articular processes, with the effect that if long continued a new articular facet at the top of the articular process of the lower bone is formed, while at the base of this process, in the curve where the articular process joins the lamina, a new articular surface forms as the result of the articular process of the vertebra above being crowded downward on to this point. Such a facet may naturally form, not simply at the lumbo sacral joint, but in any of the lumbar articulations, since in the lordosis which is peculiar to such posture the pressure is relieved from the anterior part of the spine, the vertebral bodies, and is thrown upon the posterior parts. Such a new

articular facet is shown in the specimens which are passed about.

With the understanding of such conditions, the variation in the shape of the articular processes, as was mentioned in the previous article upon "The Lumbo Sacral Articulation," must be remembered. With the later study not only have these variations been confirmed, but the crescentic type (Fig. 15) and the flat type (Fig. 16) with the blending of the two, one side showing the crescentic form, while the other side shows the flat type (Fig. 17), are not only shown to exist at the lumbo sacral junction, but also at the vertebral articulations higher up (Figs. 18, 4, 8, and 13). The effect which such peculiarity of formation must have upon the stability or the motions of the spine must be readily apparent. With the one sided crescentic articulation, naturally, in bending to that side the stability of the opposite joint being less, is naturally easily strained. Also with such differences in the formation of the articular processes it is readily apparent that, if at the same time the transverse processes are broad, in side bending the lumbo sacral joint must be less stable, so that strain of this joint, especially in bending to the side of the crescentic articulation, is much more easily produced than normal. The localized painful points along the sides of the lumbar spine with the irregular limitation of motion is often to be explained by this.

The significance which such anatomic features must have in the production of symptoms and in connection with treatment and prognosis must be apparent.

PAIN, NUMBNESS, OR PARALYSIS IN THE LEG.

Of the local symptoms little need be said in such a gathering as this except to call attention to the anatomic features which easily explain many of the points of local tenderness as well as the irregular or peculiar limitations in the spinal motions. The referred symptoms, however, may not be so obvious, and are briefly considered. That complete paraplegia involving not only the legs but the bladder and bowel may occur as the result of strain or displacement of the last vertebra upon the sacrum or as the result of the dislocation backward of the intervertebral disc, there is no question, as this has been fully demonstrated in the study of several cases. This was so fully described in the previous article upon the lumbo sacral articulation that further statement at this time is not necessary. Less extreme conditions of paralysis or disturbance of sensation in the leg are, of course, much more common and find their explanation in the anatomic formation described above. With the increased width of the transverse processes or with the crowding of the articular processes together, the space in which the nerve root leaves the spine or the space, in which the lumbo sacral cord lies as it passes under the transverse process and over the sacrum to join the sacral plexus, must be narrowed. This at times is enough to simply irritate the nerve, causing pain referred to the leg at the distribution of the nerve, while at other times the constriction is enough to cause paralysis or numbness through this same distribution. Naturally the muscles supplied by other nerves are not involved in such cases. That this condition of paralysis is not rare shown by the fact that since this condition has been understood, several cases of localized paralysis of the thigh and buttock have been seen, with relief brought about by changing the poise so that the compression of the nerve could not take place. With such general and anatomic knowledge it is usually possible to determine, especially if the x-ray is used, the anatomic diagnosis.

TREATMENT.

It is not the purpose of this paper to enter extensively into all that is concerned in treatment, since that was not the intent of the paper, and since once the anatomic conditions are appreciated the principles of treatment would be apparent to men trained as are the members of this Association. Nothing more is attempted here than to emphasize a few special points which might not at first be thought to be apparent.

With the simple sacro iliac strains or displacements there is no need of repeating what has already been written, but if the sacro iliac joint is involved as part of a lumbo sacral malformation it is obvious that treatment directed to the sacro iliac joint alone will not bring relief. In such a case not only must the sacro iliac joint be supported, but at the same time the body must be so poised that there is the least possible irritation at the lumbo sacral joint, as well as the least possible pressure of the transverse process against the sacrum and ilium. To relieve this pressure of the transverse process, since it is increased by drooping the body and increasing the normal lordosis, it will be lessened by anything that holds the body fully erect or which flattens the back. For this reason pain in the lumbo sacral or lumbo sacral transverse articulation is usually relieved by simple recumbency upon the back, although a sacro iliac joint pain may be increased by this same position.

If the condition is purely a lumbo sacral lesion, naturally the most important element in the treatment consists in so changing the poise of the body that there will be the least unnatural pressure at the joint. Usually the anatomic peculiarity, if present, has existed since birth, and the symptoms have come on late in life simply because of undesirable postures, which have been acquired. Recognizing this, it is usually possible to relieve the symptoms, although the potential of trouble remains, to become active again in case of accident or careless habits of carriage. With the sacro iliac joint lesions naturally the elements of poise are equally import-

ant, but unless other elements are present the permanence of the improvement is more certain.

In such a paper the pathologic conditions which many times are responsible for backache are not considered, since there is little new for the writer to add to that which has already been written upon these features. The anatomic elements had not, however, to his knowledge, been fully described before and hence their mention here seemed justified.

My indebtedness is here expressed to Dr. Percy Brown for his skill in securing the radiographs here presented.

Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-eighth Annual Meeting, Held at Boston, Mass., May 30 to June 1, 1912.

(Continued from page 98.)

TABES DORSALIS: THE EXHAUSTION THEORY OF ITS PATHOGENESIS WITH EXPERIMENTAL EVIDENCE.

Dr. Colin K. Russel, Montreal, Canada: The pathogenesis of tabes dorsalis is admittedly unsatisfactory. In tabes there is probably a slowly acting toxine which influences cell metabolism in a deleterious manner so that the building-up process is relatively insufficient and the cell becomes exhausted. The cells which are most constantly active, and which we would expect to be affected first, are those cells which maintain the tone and position of the muscles, especially those muscles which are most frequently called into activity. The distal parts of the neurone wither or atrophy and thus the peculiar anatomical-pathological condition of the fibres in the posterior columns may be accounted for. The practical absence of any lesion in the posterior ganglia is also explicable. The reaction of the pupils to light, being far more frequent and active than that to accommodation, produces an exhaustion of the neurones subserving that function giving rise to the well-known Agryll-Robertson pupil. Clinically this theory explains also the fact that men are more frequently affected than women and why the natives of tropical countries are practically immune to the disease. The lightning and girdle pains are probably due to a definite syphilitic process in the spinal meninges as is shown among other things by their alleviation after salvarsan treatment. Following up this theory the writer has been able to produce the Argyll-Robertson pupil in rabbits which had first been inoculated with the spirochaeta pallida, by subjecting them to alternating light and darkness, by means of a miniature revolving light house. Control rabbits which had not been inoculated did not develop any abnormality of the pupil although placed under the same conditions, and rabbits which had been inoculated but had not been subjected to the light stimulation also remained normal.

DISCUSSION.

Dr. B. Sachs, New York: I have tried ever since Edinger first formulated his theory to reconcile the facts with the theories or the theories with the facts, but cannot say that I have adopted the theory as anything more than an interesting theory. It has not proved particularly helpful in the explanation of the morbid processes. It seems easy enough to explain a number of the morbid symptoms on the basis of the theory, but, on the other hand, there are a number of cases that we all see in which just the opposite course occurs to what one would expect if the theory were true.

Dr. Joseph Collins, New York: I am in a position today to say that a case has come under my observation in which the Argyll-Robertson pupil existed according to the opinion of three competent trained neurologists and that it disappeared after active salvarsan therapy. If Dr. Russel's very ingenious explanation, or rather his explanation of the Argyll-Robertson pupil based on this ingenious experiment which he has carried out, is true, and I see no reason why it should not be considered to be so, then it is likely that and the other cardinal symptoms of the disease may be relieved if attacked sufficiently early by appropriate therapy. These observations support the contention that tabes is in reality a meningitis which is an expression of a syphilosis.

Dr. Hugh T. Patrick, Chicago, Ill.: I have not been able to find facts in my practice to support Edinger's theory. On the contrary, I have been inclined to think that such patients as pursue an occupation making a particularly strong call upon one set of extremities are apt to suffer in that side less. I have in mind a painter of pictures, who was and always has been, very sluggish in regard to general exercise, who became exceedingly ataxic in his legs, but painted his pictures exceedingly well.

Dr. F. W. Langdon, Cincinnati, O.: Dr. Russel has given an extremely valuable contribution to what we might term rational pathology of tabes. Some 15 years ago in a paper upon this subject I alluded quite emphatically to the biological reason for the preponderance of tabes in the lower extremities in man. Man has for a comparatively few generations been walking on his hind legs, so to speak, and these are the neurones, as Dr. Russel has pointed out, that have no rest. The muscle sense is continually acting even in the sitting position and more so in standing. Some years later, when Edinger's exhaustion theory was promulgated, I called attention to not only the upright position as putting this constant strain, but also the enormous demand on sensory light reflex of the pupil.

Dr. Russel, in closing: I have found a great many patients who have not done well on the Fraenkel treatment. In these cases it has practically always turned out that in their enthusiasm to get well they have overstepped the limit and done too much and they have exhausted themselves rather than reeducated themselves. The only way to prevent this is to take the pulse as an indication as to when the patient is becoming exhausted. In every case that I have had experience with where this has been done the patients have become re-educated.

SOME ATYPICAL FORMS OF TABES AND PARESIS CONSIDERED IN THE LIGHT OF SERODIAGNOSIS.

Dr. C. Eugene Riggs, St. Paul, Minn.: I report four irregular cases of tabes and one of general paralysis. In none of these were the classical, clinical symptoms of tabes or paresis present. Knee-jerks and Argyll-Robertson phenomenon were wanting in all the tabetics. Lightning pains present in two; lymphocytosis in only two cases. The blood

serum gave two negative Wassermanns; the same was true of cerebrospinal fluid. The globulin reaction was positive twice. In the case of paresis the mental symptoms resembled the depressive phase of manic-depressive insanity rather than paresis. All four reactions almost invariably present in paresis (Nonne) were positive. After dementia seemed imminent, but the patient made an apparent recovery; most probably a remission.

DISCUSSION.

DR. E. D. FISHER, New York: Sero diagnosis is of great value. In the psychopathic wards in Bellevue Hospital, New York, the diagnosis of general paresis is often very difficult to make from a clinical standpoint when combined with syphilis and there is a history of alcoholism. It may take several months of observations, before a positive diagnosis can be made. It is in just such atypical cases as Dr. Riggs has said, that this method of examination is so important.

DR. COLIN K. RUSSEL, Montreal, Canada: The Wassermann reaction, in my experience, has not been altogether satisfactory. I have been led to place very little dependence upon the Noguchi globulin reaction. I place more confidence in the lymphocyte test and am guided in the administration of salvarsan by the findings of this.

INDUCED PARALYSIS. ITS THERAPEUTIC APPLICATION IN A CASE OF TIC.

DR. SIDNEY I. SCHWAB, St. Louis, Mo.: Injection of alcohol in the nerve produces acute paralysis. After a number of months there occurs slow progressive return of function due to regeneration of nerves temporarily blocked or excluded from activity. Concerning the theory of tic movement the psycho-genetic origin must be removed. Notwithstanding there are certain cases that are absolutely untouched by any of the well-known methods now in use. It is for this class of cases that the procedures described here were devised. The tic movement is so embedded in the patient's consciousness that it makes him unable to carry on his work. The man to whom I refer was a man of minor intelligence who worked in a bristle factory. He had to tie the bristles in bunches ten hours a day for ten years steadily. The tic movements consist of extention of the fingers and thumb, the arm is then thrown clear from the body and grasped with the right hand. Among other forms of treatment the Rolandio area was exposed in 1908 but nothing was found. On the 21st of October, 1909, injection was made into the spinal accessory, median and ulnar nerves with 80 per cent. alcohol. This produced flaccid paralysis. In May, 1910, the first return in voluntary muscular power was noted. It seems reasonable to assume that the tic movement will not return even though function should return.

DISCUSSION.

DR. HUGH T. PATRICK, Chicago: I am very glad indeed to have Dr. Schwab's favorable report. Believing as I do that tic and spasm are so totally distinct and separate I have never had the courage to inject tic for the reason that tic, if stopped in one place, is very apt to come on in another as all the patient's own devices for stopping it show.

DR. L. PIERCE CLARK, New York: Two or three years ago I saw a case of tic of the neck and advised the surgeon not to do any operation, but he went ahead and did the alcohol injection and, singularly enough, got good results. I believe that these tics are to be judged as mental factors. One should not concern himself with the particular kind of movements as the whole individual needs training for giving the proper degree of mental balance.

PRELIMINARY REPORT UPON A HITHERTO UNDESCRIBED TYPE OF FAMILIAL PALSY.

DR. L. PIERCE CLARK, New York: I report in detail nine members of a fraternity of 19 individuals of four generations who presented life-long attacks of motor disability or palsy resembling family periodic palsy. My cases can be differentiated from the latter affection in that the disability attacks were unattended by electrical or deep reflex alterations and in that the cranial nerves and some involuntary muscles showed loss of movement. There was an inherent muscular defect akin to pseudo-muscular dystrophy in some of the members of the third and fourth generation and severa acetonuria in several children of the fourth generation, the same followed by death in one child. All the individuals afflicted with disability attacks were females except the great-grandfather, with whom the disease apparently originated. One girl of four, of the fourth generation, who has just developed the disease also suffered severe acidosis, being the first member to show an association of the two diseases in the same individual. The disability attacks in the several members of the different fraternities occur at irregular intervals of days, weeks or months. The attacks are indifferently mild and severe, occur more or less abruptly and affect the finer voluntary movements in the lower extremities chiefly.

THE ETIOLOGICAL RELATION OF SYPHILIS TO ARAN-DUCHENNE MUSCULAR ATROPHY.

DR. WILLIAM G. SPILLER, Philadelphia: Comparatively few writers have considered syphilis in the etiology of the various forms of spinal muscular atrophy, and the evidence offered by those who have done so has not been generally accepted. The writer has reexamined for evidence of syphilis 10 cases with necropsy, embracing typical clinical types of amyotrophic lateral sclerosis, lateral sclerosis and progressive spinal muscular atrophy and has found some lymphocytic infiltration of the pia in most of the cases. He has recently studied two cases of cerebro-spinal syphilis and one case of tabes with typical Aran-Duchenne atrophy, *i.e.* atrophy confined to the hands and forearms, and one of each of these types was with necropsy and microscopical examination. In these two cases marked degeneration of the cells of the anterior horns was found. If syphilis of the nervous system be suspected, lymphocytic infiltration of the pia should be present in a considerable number of cases, as it is found frequently in tabes. It is not pathognomonic. In some cases thickening of the blood vessels should be expected, but not so frequently as lymphocytic infiltration. Lymphocytosis of the cerebro-spinal fluid is important as an evidence of syhpilis.

DISCUSSION.

DR. D. J. MCCARTHY, Philadelphia: Without some other evidence we ought not to adopt the view proposed by Dr. Spiller.

DR. M. ALLEN STARR, New York: Erb's statement in regard to the syphilitic causation of loco-

motor ataxia was substantiated by showing definitely that the percentage of locomotor ataxia in those who had syphilis was far greater than the percentage in other disease. If Dr. Spiller's statements are to be accepted, he should show that a large percentage of patients suffering from amyotrophic lateral sclerosis are the subjects of syphilis. I can recall perfectly well three cases treated for some years for amyotrophic lateral sclerosis in all of whom a history of syphilis was obtained.

DR. E. E. SOUTHARDT, Boston: I am inclined to think that one should not assert lues on the basis of leukocytosis. It is well known that anterior poliomyelitis shows lymphocytosis in a particular characteristic way. Tuberculosis of the meninges shows it. I have seen cases of pneumococcal meningitis which showed monoculear infiltration. We might wake up some day suddenly to find that many things called syphilitic are not syphilitic.

DR. ISRAEL STRAUSS, New York: I think that what Dr. Southard has said is true. We find leukocytic infiltration in tuberculosis and in other conditions of the nervous system. It is the method by which the nervous system reacts to infectious states in the acute or subacute types. In the chronic states we do not know of anything in the present state of our knowledge which gives us the lymphocytic infiltration which syphilis does.

DR. JOSEPH COLLINS, New York: I venture to suggest that this paper that Dr. Spiller has presented is an extremely important one and will mark a very distinctive period in our interpretation of spinal cord disease. There can be no doubt that what Dr. Southard has said is true, but it does not invalidate the importance of Dr. Spiller's claim and contention. It will permit us now to make investigation of our cases clinically, to demonstrate a syphilitic disorder. For instance, we will not be justified in allowing any case of asymotrophic lateral sclerosis to go through our hands without repeated investigations as to whether or not the syphilitic poison exists in the system, and it seems to me that that is the great application to our problem of the contribution that Dr. Spiller has made.

Dr. Spiller, in closing: Of course I do not expect to have my views accepted in large part. It would not have been worth while to present the paper if I had expected that. I emphasize that I did not say that every case of amyotrophic lateral sclerosis or chronic bulbar palsy is syphilitic. I wished only to call attention to the possibility of syphilis occurring in a number of such cases and feel that I am justified in reporting a study.

(To be continued.)

Book Review.

Diseases of Children. A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practitioners of Medicine. By BENJAMIN KNOX RACHFORD, Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati; Pediatrician to the Cincinnati Hospital, Good Samaritan Hospital and Jewish Hospital; ex-President of the American Pediatric Society and Member of the Association of American Physicians. New York and London: D. Appleton and Company. 1912.

This text-book, of nearly eight hundred pages, is one of the very best of those dealing with this subject, not only in English, but in any language. It represents the best in American Pediatrics, and is written from the American rather than from the foreign point of view. It is impossible, in a work of this size, to analyze the different portions in detail, especially when they are so uniformly good as they are in this instance. The author's views as to infant feeding are safe, sane and reasonable, as are his views as to treatment in general. It gives us great pleasure to recommend the work most highly.

The Principles of Human Physiology. By ERNEST HENRY STARLING, M.D. (London), F.R.C.P., F. R. S., Jodrell Professor of Physiology in University College, London. Octavo, 1423 pages, with 564 illustrations, some in color. Philadelphia and New York: Lea and Febiger. 1912.

In this book Professor Starling has made a valuable contribution to the general literature of Physiology. By permitting himself a wider scope than does the usual writer of text-books of Physiology for medical students, he has been able to include much interesting matter not ordinarily found in such text-books. Particularly does this appear in his discussion of the less well-known phases of the subject. Here he presents the most recent advances with sufficient detail to satisfy the requirements of the reader to whom these phases are new, and in a manner both interesting and instructive.

In a section headed General Physiology the author deals concisely with certain facts of physics and chemistry essential to a clear understanding of physiology, but not included in the college courses in these subjects usually taken by medical students. Such chapter headings as "The Mechanism of Organic Synthesis," "The Energy of Molecules in Solution," "The Properties of Colloids," indicate both the scope and the value of this section.

Special stress is laid throughout the work on the relation of the facts described to clinical conditions, the object being to impress the reader with the importance of physiological knowledge as a basis for rational therapeutics.

The book is not intended for beginners in physiology. To profit most largely from its use the elements of the subject should have been previously studied. To the advanced student, or to the practitioner, however, it will be found a valuable work of reference.

A feature which commends itself is the subdivision of the book into a great many short chapters. This arrangement facilitates that use of the book for reference which is likely to prove its chief function.

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A MUNICIPAL TUBERCULOSIS SANATORIUM.

IN the latest *Monthly Bulletin* of the New York City Health Department Dr. H. M. Biggs, general medical officer of the department, gives an interesting and instructive account of the municipal tuberculosis sanatorium at Otisville, Orange County. The growth of the institution, Dr. Biggs states, has been somewhat slower than would, perhaps, be desired by some, owing to a variety of causes, although it now has over 500 patients. On opening this sanatorium an entirely novel proposition had to be met. He had long felt that the solution of the problem of providing institutional care for the tuberculous poor of New York must be found in some method different from any which had up to that time been adopted. So vast was the number of cases to be provided for that it was believed that the financial authorities would not otherwise feel justified in making the necessary appropriations. He felt also that the methods followed in tuberculosis sanatoria at that time were not fitted for the class of patients for which this institution was designed. It was therefore determined to establish one where the original expenditure for the housing of patients should be as small as was consistent with their physical well-being and where the administration was as largely as possible through the labor of the patients. Dr. Biggs believed that such an institution was not only feasible and desirable, but that it would remove the ground for frequent criticism of tuberculosis sanatoria, that the treatment by long-continued rest (which, in his judgment, had been carried to too great length) often returns patients with arrested disease, but physically unprepared to resume any useful manual occupation. This plan of treatment also inculcates so firmly a belief in the necessity of rest, and so carefully fosters the life of complete idleness, that the patients are often unhappy and discontented when compelled to return to work to earn their livelihood. The success attending its efforts in the line indicated has, he says, demonstrated the correctness of the attitude taken by the Health Department. An institution has been developed which differs in many important particulars from any existing sanatorium and, in the opinion of those most competent to judge, comes nearer the solution of the problem of the institutional care of the tuberculous poor than has been found anywhere else.

The Otisville Sanatorium was opened, with six patients, in July, 1906, after nearly ten years of effort spent in obtaining the necessary authorization from the Legislature and the required appropriations from the municipal authorities and in finding a suitable site. When the agitation for the establishment of such an institution was begun, almost fifteen years ago, it should be remembered, the general attitude towards the tuberculosis problem was quite different from that existing today, so that the difficulties encountered were numerous and the progress slow. The sanatorium, which is near a station on the Erie Railroad, 76 miles from New York, is located on the southeastern slope of the Shawangunk Mountains, and the grounds comprise between 1,300 and 1,400 acres. When it was started nothing definite was known of the climatic conditions prevailing at Otisville, or of the amount of exposure which the class of patients to be treated would bear without harm and with only beneficial results. It was, therefore, decided to test carefully various types of simple frame structures, to determine what best suited the needs of an institution of the proposed type, rather than to lay out a comprehensive scheme in advance. The construction work has, for the most part, been done by mechanics under the supervision of employees of the Health Department, and the sanatorium was, and is, in several important respects, an experimental institution. A characteristic feature of its administration is its insistence on practically continuous outdoor treatment. This is carried so far that, out of the more than 500 patients, not more than 25 can, under any possibility, be placed within four walls. Experience has shown that cases in the second and third stages of the

disease, taken in the middle of winter from stuffy, hot tenements to Otisville, and immediately made to live out of doors day and night, are not affected unfavorably, even when the atmospheric temperature is zero. On the contrary, only good has followed the procedure. During the first week or two the patients may complain somewhat of the cold, but after that they become accustomed to it and begin to realize the beneficial effect of the cold, fresh air. It has been found that the symptoms of pulmonary disease,—cough, expectoration and fever,—as a rule rapidly disappear, even in cases in which the disease is progressive. It is to be noted that, since the opening of the institution, there has never been a death in it from acute respiratory disease or from any other acute affection; nor has there ever been a case of contagious disease. As there is no "indoors" except the infirmary, there is no discussion as to whether patients not assigned to this will or will not sleep out of doors. It has been shown here that, with the body protected by warm clothing, no amount of exposure to cold does any harm, even in the case of young children. The Otisville plant is self-contained, producing to a large extent its own milk (from a model dairy), fresh vegetables, farm products, and ice; it supplies its own water, bakes its own bread, disposes of its sewage, and has its own electric plant. Accommodations are also provided for the vaccine stables and the autotoxin stables and laboratory of the Health Department and for housing employees connected with these.

It is the belief of the sanitary authorities that, eventually, at least 1,500 patients can and should be provided for at this place, in at least six separate units situated at different points on the property Originally, it was intended that the institution, like other tuberculosis sanatoria of that time, should care only for cases of incipient disease, but experience has shown that there were many reasons for changing this view. Among these were: That in a large majority of the cases occurring among the poor the disease when recognized is no longer incipient; that the really incipient cases often have so few symptoms that individuals will not consent then to stop work and go to an institution; that the cases in the second stage of the disease often do quite as well as the incipient cases; and that even well-advanced, third-stage cases often show surprising improvement after a few months at the sanatorium. So strongly has the necessity been felt for providing at Otisville for the more advanced cases which are not willing to enter a city hospital that it is purposed, during the coming year, in addition to the erection of several more pavilions for women and children, to build an infirmary with 100 beds, especially designed for these patients. If, after two or three months, such cases do not show marked improvement, they can then be transferred to one of the hospitals in the city, where they will then be willing to go. In accordance with the principles mentioned, every patient admitted to the sanatorium is expected to do a certain amount of useful work. On admission, the patient undergoes a rest treatment of some sixteen to twenty-one days, during which careful watch is kept of his temperature and of his reaction towards exercise. If his temperature is normal and his general condition satisfactory, on the eighth day he begins to take a measured walk, under supervision, twice a day, and, depending upon his tolerance for this form of exercise, the length and time of the walk are gradually increased until finally he walks for one hour twice daily. He is then transferred to the sanatorium proper, and assigned to work suited to his physical condition. The different occupations are classified into light, medium and heavy, and the assignment of patients is re-arranged weekly. Experience has shown that it is of the utmost importance that the patients should remain in the institution longer than the minimum period of three months, in order to make their improvement of lasting benefit; but, with the class of patients treated here, such a length of stay is often impossible because of financial distress at home. In such instances, it has been the policy of the administration to give some patients, who are competent and able to work, a small wage, after they have remained three or four months, and keep them employed as patient helpers. The full-paid, non-patient employees of the sanatorium, including seven hospital physicians, number only forty-one, and a large proportion of these were formerly patients. In addition, however, the administration is charged with the service of one physician, who is on duty mainly at the Hospital Admission Bureau, three ministers of religion, who visit the institution on each Sabbath, and one dentist, who also makes weekly visits. The nursing required at the sanatorium is performed mainly by nurses specially trained there. There are but four fully paid graduate nurses, and the others are either not paid at all

or receive but a small salary during their period of training. Many of the graduates from this training school have secured positions as trained attendants in other sanatoria. All patients accepted for admission are required to supply themselves with a complete outfit of clothing and other personal articles. The inmates are given a generous, wholesome diet, but superalimentation is not encouraged; extra diets being given only to those who show persistent loss of weight. The article includes the requirements for admission, the institutional routine, specimen dietaries, the disposal of sputum, and a description of the buildings, and it is stated that recently, since it has been felt that the type of construction adapted for the purpose has been fairly well established, the department has begun to construct the buildings of hollow tile and cement. Tables are then given summarizing the more important facts concerning the patients treated, and others showing the weather record at Otisville for four years, the good results obtained being considered in a large measure attributable to the favorable climatic conditions.

PRACTICAL EUGENICS.

FOR many years past there has been an ever-increasing interest taken in the subject of racial betterment through the practice of eugenics. So far the chief practical results born as a result of the eugenic campaign have been educational in character. Taken by and large, the thoughtful people of today are decidedly less prone to rush blindly into matrimony than were the same class some ten or fifteen years ago. Although there is as much falling in love and giving in marriage as ever, the tendency to fall in love with the right partner is on the increase. By careful study of the subject, the educated classes are becoming conversant with the general principles which underlie the successful breeding of the mentally fit, and it begins to look as though an intelligent sexual instinct would eventually be evolved among the men and women who comprise the educated walks of life. In this country it is not an exaggeration to say that these constitute the majority. It is, therefore, entirely within the bounds of reason to take an optimistic outlook upon the subject of racial betterment simply because the people are being gradually educated in the manner by which such betterment can be accomplished. But when looked at from the purely practical standpoint it is evident that education alone cannot be counted upon to entirely solve the problem. So far as the already existing persons of good family stock are concerned, the science of eugenics has already accomplished a great deal. These normal people from normal stock are voluntarily going to do all in their power to keep their stock up to the family standard. No legislation is necessary to keep such persons from contracting violently uneugenic alliances. But when it comes to a consideration of the families of already tainted stock, the question assumes another aspect. It seems that part of the mental unfitness of the mentally unfit consists in a deficient power of sexual control and an innate tendency to mate with their own kind. How to eliminate this class of people without violating all principles of inherent individual rights is the grave practical problem which confronts us. Undoubtedly, insanity and feeblemindedness would be reduced to almost the vanishing point within a few generations if those having these mental taints could be kept from mating by segregation during the reproductive period. Davenport has estimated that if such a plan could be carried out the state could be relieved within a period of fifteen or twenty years of the burden of further increasing its institutions, and that in thirty years most of its properties especially acquired to accommodate all the seriously defective could be sold.[1] The theoretical possibility of such a happy outcome has been admitted by practically all students of the subject, but the practical application of such methods has generally been considered as impossible under our present social conditions. In the current issue of the *Training School* there is an article by Professor Johnstone of the Vineland, New Jersey, School for Backward and Mentally Deficient Children,[2] which appears to contain within it the germ of a plan which might easily grow into a practical scheme for the ultimate elimination of the defective stocks. By utilizing the laws already in existence and combining the public and private institutions and the classes for backward children in the public schools all into one general network, he outlines a plan that on the face of it looks both practical and economical. It must be understood that New Jersey has a law in force for

[1] Davenport, Charles Benedict: Heredity in Relation to Eugenics, p. 259.

[2] Johnstone, E. R.: A Plan to Take Care of the Defectives of New Jersey. The Training School. November-December, 1912.

the reporting of the feeble-minded that is so framed that it is entirely possible for every person of this class to be known to the proper state authorities. With this fundamental difficulty already provided for, Johnstone proposes that: (1) All feeble-minded children under the age of puberty should be sent to the special classes in the public schools. This is in accordance with the demonstrated fact that until the child becomes sexually or otherwise dangerous to the community he can safely be left at large, and in the meanwhile the expense of housing, clothing and feeding remains with the parents. (2) In the large cities he suggests that there be founded special municipal institutions for the feeble-minded between the ages of 12 and 20. Children from the special classes he proposes to advance to the institutions at the proper age. Here the expense must be borne by the municipality, the parents contributing what they are able and the state assisting, as it does in the county care of the insane. The feeble-minded between 12 and 20 who come from the rural districts can be looked after at the institution at Vineland. (3) Those who are 21 years or over can be cared for by the state at the two custodial institutions which it already has in operation for this class, and the transfers should be made directly from the institutions for children to the state institutions for adults. (4) Finally, all the *idiots*, that is, those whose personal habits are unclean, and who need special care and attention, but who are beyond the possibility of useful training, should be sent either to one of the institutions for adults or looked after in the county almshouses.

There are, perhaps, but few states in the Union which have already in existence so many of the units necessary for the completion of such a plan as that outlined by Johnstone for the state of New Jersey. On the other hand, there are but few, if any, which do not already make some provision for this class of unfortunates, and it would seem that a very little concerted action on the part of those interested might easily result in the formulation of an equally practical procedure for every state in the Union. In the meantime we will await with interest the outcome of Professor Johnstone's plan for New Jersey. So far as we are aware, it is the first definite practical plan for the prevention of propagation of the unfit which does not do violence to the principles of the inherent right of the individual to such happiness as he is capable of enjoying without detriment to the community at large, and which at the same time could be put in operation without any revolutionary changes in already existing political and social conditions.

THE BALKAN SITUATION.

The peace negotiations at London between the representatives of Turkey and of the Balkan allies are apparently at a deadlock. Despite repeated conferences, satisfactory terms cannot be reached with relation to the surrender of Adrianople and its adjacent territory, and to the disposal of the Aegean Islands. Indeed the negotiations have now been practically suspended, though not broken off; and unless some mode of agreement is reached or suggested, or unless mediation by the European Powers is adopted as an alternative, it seems likely that in the near future there will be a resumption of hostilities.

Meantime, though the armistice has been generally observed everywhere except by the Greeks and at the siege of Adrianople, the need of medical relief among the combatants remains as pressing as ever. Asiatic cholera and typhoid fever continue their ravages in both armies, and among the non-combatants as well. The Bulgarian government has recently asked for the services of 70 Russian and Czech physicians to take the places of native physicians who are at the front. The Greeks have undertaken the hospital and sanitary administration of Salonica, which they have captured. Elsewhere the Red Cross of various nations continues its beneficent work. A further appeal for funds was issued on Jan. 12 by the American Red Cross International Relief Board, as follows:

"Our people do not generally know that during our war with Spain the Red Cross Societies of Europe sent contributions to the American Red Cross to aid in the care of our sick and wounded men. Today, tens of thousands of sick and wounded soldiers in the Balkans appeal to us for help. The International Red Cross Committee at Geneva and each of the societies of Turkey, Bulgaria, Servia, Greece and Montenegro have asked our aid. The European societies are sending doctors, nurses and hospital supplies. We are too far away to do this, but we can send money to purchase the needed hospital supplies. Let us give generously, both for humanity's sake and to show our gratitude for what was done for us."

The total of Massachusetts subscriptions to this fund now amounts to $7,063.43.

MEDICAL NOTES.

DIPHTHERIA AND SCARLET-FEVER IN CHICAGO.—Report from Chicago on Jan. 7 states that diphtheria and scarlet-fever are epidemic in that city, there being on that date 450 cases of the former and 2100 of the latter disease.

A TALL WOMAN.—Report from Quincy, Ill., states that Miss Ella Ewing, of Gorin, Mo., who died on Jan. 10, was 8 feet and 3 inches in height, and is believed to have been one of the tallest women in the world.

SEIZURE OF OPIUM IN SAN FRANCISCO.—Report from San Francisco states that on January 8, two United States customs inspectors discovered and seized 135 tins of opium, valued at $9,400, aboard the Pacific mail steamer *China*, which recently dropped anchor in that port. The opium was confiscated and will be destroyed.

A BRITISH CENTENARIAN.—Mrs. Ann Lacy, of Ramsgate, England, is said to have been born on December 29, 1812, and on the recent celebration of her supposed centennial anniversary, received a congratulatory message from the King.

THE SHORTEST WAY WITH LEPERS.—Report from Shanghai, China, on January 10, states that by order of the provincial authorities of Nanking, in the province of Kwang-si, 39 lepers of that city were recently put to death by shooting, and their bodies burned and buried. Their only crime was their disease. This drastic Oriental procedure is one method of eliminating undesirable infections from the body politic.

DOMICILIARY DISTRIBUTION OF TUBERCULOSIS IN PARIS.—In a recently published report to the prefect of the department of the Seine, the chief of the Paris bureau of hygiene describes the researches of his bureau into the house distribution of tuberculosis and cancer in that city. These investigations now cover a period of 18 years, during which 169,705 persons in Paris have died of pulmonary tuberculosis. Of these, 9,371 were in 1911, of whom 2,523 were in houses which are considered confirmed foci of the disease. The eradication of these houses, and of similar domiciliary foci of cancer, and their replacement by new buildings of more hygienic character and construction, is the aim of the bureau, and is slowly being accomplished.

AN HISTORICAL MEDICAL EXHIBITION IN LONDON.—For the first time in 21 years the International Medical Congress will meet in London in the summer of 1913, and, in this connection, an exhibition of rare and curious objects relating to medicine, chemistry, pharmacy and the allied sciences is being organized by Mr. Henry S. Wellcome. The response to the appeal for loans has been most successful, with the result that probably one of the most interesting collections of historical medical objects ever gathered together will be on exhibition during the meeting of the Congress.

Among other interesting sections is one including the medical deities of savage, barbaric and other primitive peoples. Through the kindness of friends, specimens of these have been forwarded from all parts of the globe, but there are still many gaps to be filled, and those who possess such objects, and would be willing to loan them, should communicate with the Secretary of the Exhibition, whose address is given below.

Amulets, talismans and charms connected with the art of healing will also form another prominent feature, and any loans of this description would be welcomed.

In the section of surgery, an endeavor will be made to trace the evolution and development of the chief instruments in use at the present day, and it is desired to accumulate specimens of instruments used in every part of the world by both savage and civilized peoples.

In pharmacy and in botany special exhibits are projected, which will include models of ancient pharmacies, laboratories and curious relics of the practice of alchemy in early times. Specimens of ancient and unusual materia medica from all parts of the world will also be exhibited.

A complete, illustrated syllabus will be forwarded to anyone interested on application to The Secretary, 54a Wigmore Street, London, W. England.

BOSTON AND NEW ENGLAND.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, January 11, 1913, is 278, against 229 the corresponding week last year, showing an increase

of 49 deaths, and making the death rate for the week 19.71. Of this number, 148 were males and 130 were females; 273 were white and 5 colored; 165 were born in the United States, 99 in foreign countries, and 14 unknown; 59 were of American parentage, 179 of foreign parentage, and 40 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 2 deaths; scarlatina, 53 cases and 5 deaths; typhoid fever, 7 cases and 0 deaths; measles, 161 cases and 5 deaths; tuberculosis, 58 cases and 29 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 49, whooping cough 4, heart disease 36, bronchitis 3. There were 15 deaths from violent causes. The number of children who died under one year was 51; the number under five years, 71. The number of persons who died over sixty years of age was 76. The deaths in hospitals and public institutions were 128.

Cases of infectious diseases reported to the Boston Board of Health for the week ending January 14, 1913, are: Diphtheria, 41; scarlatina, 38; typhoid fever, 10; measles, 128; smallpox, 0; tuberculosis, 51.

The death rate of the reported deaths for the week was 19.29.

Scarlet Fever at Amherst.—Report from Amherst, Mass., on Jan. 17, states that an outbreak of scarlet-fever is in progress among the students at the Massachusetts Agricultural College in that town. Twenty-one cases of the disease have thus far been reported and placed under quarantine. One of these patients died on January 19.

Typhoid Fever in Chelsea.—Between January 12 and 17, 18 cases of typhoid fever were reported in Chelsea, Mass. All the cases have been traced to the milk supply of a single dealer in that city.

Smallpox in Lynn.—Two cases of smallpox were reported last week in Lynn, Mass. Both have been traced to exposure to a smallpox patient who recently escaped from the Lynn Hospital.

Mass. General Hospital Training School.—At the annual graduation exercises of the Massachusetts General Hospital Training-School, held in Boston on Tuesday evening of last week, January 14, the principal address was delivered by Prof. C. E. A. Winslow, of Columbia University, on Public Health. Diplomas were awarded by Dr. Henry P. Walcott, of Cambridge, Mass., to a class of 50 pupil nurses.

Robert Bent Brigham Hospital.—At a recent meeting of the corporation of the Robert Bent Brigham Hospital, Dr. Ernest W. Cushing, Dr. Robert B. Dixon, and Dr. Joel E. Goldthwait were elected directors of the institution.

Needs of the South Department.—The trustees of the Boston City Hospital have recently sent to the municipal authorities a third communication pointing out the present prevalence of diphtheria and scarlet-fever in this city, the inadequacy of the provision at the South Department of the Hospital for the care of these cases, and the consequent urgent need of appropriations for the enlargement of its equipment. The sum originally asked by the trustees was $297,000 to provide for a new ward, increasing the capacity of the South Department. With proper room for only 250, this department is now accommodating over 350 patients.

A Prolific Centenarian.—In the issue of the Journal for November 28, 1912, we noted with pleasure the celebration of the supposed centennial anniversary of Mrs. John Urquhart, of South Weymouth, Mass, who is said to have been born in New Brunswick on November 8, 1812, one of a family of six children. It is with regret that we now learn of the death of Mrs. Urquhart on January 8, 1913. Her activities were preserved nearly to the last. She is survived by 9 of her 14 children, by 34 elderly grandchildren, by 17 great-grandchildren, and by two great-great-grandchildren.

Hartford Medical Society.—At the annual meeting of the Hartford (Conn.) Medical Society on January 6, Dr. Charles D. Alton was elected president, Dr. Everett J. McKnight, vice-president; Dr. John Carter Rowley, secretary; Dr. Arthur H. Griswold, assistant secretary, and Dr. Philip D. Bunce, treasurer for the ensuing year.

Needs of Massachusetts Babies' Hospital.—The recently published annual report of the Massachusetts Babies' Hospital, Jamaica Plain, describes the work of this institution and points out its need of more funds to enable the continuance of this work and its legitimate exten-

sion. This need is further emphasized as follows in a resent letter to the daily press from the president of the board of directors:

"The Massachusetts Babies' Hospital (a society combining hospital care with placing at board infants whose parents are temporarily unable to care for them), is unable to meet increased demands, owing to lack of funds. At present we are obliged to turn away babies which need our care. The hospital is now in charge of Dr. Henry I. Bowditch, of the Harvard Medical School faculty. The consulting physicians are Dr. John Lovett Morse and Dr. Fritz B. Talbot.

"In addition to larger income from donations we need to increase the endowment fund which is too small for such an important institution.

"This work must be generously supported. It constitutes a very large share of the work which is being done for children in Boston.

"There are many ways in which volunteer helpers can be of service. Those who wish to offer their services can apply to Miss Alice M. Cheney, general secretary. The annual report will be gladly sent to any address upon application to the office, 43 Hawkins Street.

"Donations large or small, from $1 up, will be gratefully received and may be sent to Walter Hunnewell, Jr., treasurer, 19 Congress Street, Boston."

A MEDICAL BEQUEST.—The will of the late Anna M. Healy, of Quincy, Mass., contains a bequest of $2000 to the Free Home for Consumptives, Dorchester.

NEW YORK.

MORTALITY STATISTICS.—With the onset of winter there has naturally been some increase in the mortality of the city. While this is fairly general in the more common causes of death, the increase is most marked in pneumonia and organic heart diseases. Still, the death-rate for the month of December (14.21) was slightly lower than in December, 1911, (14.58), and makes a very good showing for this season of the year. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 3 in November to 6 in December; the weekly average from scarlet-fever, from 5.25 to 7.5; from whooping-cough, from 3 to 4; from diphtheria and croup, from 21.75 to 25.5; from influenza, from 4.25 to 8; from pulmonary tuberculosis, from 147.5 to 160.25; from pneumonia, from 94.75 to 138.25; from bronchopneumonia, from 74.5 to 94.5; from cancer, from 84.25 to 85.75; from apoplexy and softening of the brain, from 21.5 to 24; from organic heart diseases, from 164.25 to 194.25; from appendicitis and typhilitis, from 9 to 10.5; from cirrhosis of the liver, from 18.75 to 20.5; and from Bright's disease and acute nephritis, from 116.75 to 124.5. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 10.5 to 7.75; from epidemic cerebrospinal meningitis, from 3.25 to 2; from tuberculous cerebrospinal meningitis, from 10.5 to 8.25; from acute bronchitis, from 15.5 to 13.75; from diarrheal diseases under five years of age, from 42.75 to 27.75; and from hernia and intestinal obstruction, from 10.75 to 9.75. For the first time for many months there was one death from smallpox.

BABIES' WELFARE ASSOCIATION.—A summary of the work of the Babies' Welfare Association shows that during the year 1912 the number of deaths in infants one year old and under in the city was 14,289, as against 15,053 in 1911; a saving of 6 per cent. That this result was not entirely due to favorable weather and other general conditions is shown by the fact that the reduction of mortality was three times greater in New York City than in the rest of the State.

RECEPTION TO COUNTESS OF ABERDEEN.—In recognition of her labors for the suppression of tuberculosis in Ireland, the directors of the Tuberculosis Preventorium for Children at Farmingdale, N. J., tendered a reception to the Countess of Aberdeen, wife of the Lord-Lieutenant of Ireland, at the New York Academy of Medicine on January 9, and among those who made addresses on this occasion were Controller Prendergast and Dr. H. M. Biggs, general medical officer of the Health Department.

MORTALITY FROM PREVENTABLE DISEASE.—After a study of the vital statistics of the State, Governor Sulzer has arrived at the conclusion that the mortality from the various preventable diseases ought to be materially reduced, and with this end in view he has appointed a special commission with broad powers to investigate and recommend measures for the improvement of present conditions. Dr. H. M. Biggs, general medical officer of the New York City Health Department, has been made chairman of this commission, and Homer Folks, secretary of the State Charities Aid Association, secretary, and

other members of the commission are Drs. Edward H. Baldwin of Saranac Lake, John C. Otis of Poughkeepsie, and W. E. Milbank of Albany. One of the first duties of the commission will be to select a well-equipped sanitarian for the important position of State Commissioner of Health, to succeed Dr. Eugene H. Porter, whose term expired on January 1.

BEQUESTS IN MEDICAL CHARITY.—Of $20,000 left to charities by the will of the late Miss Florence Phillips of New York, $5,000 each is bequeathed to the Montefiore Home and Hospital for Chronic Invalids and the State Charities Aid Association.

Under the will of the late Gustave Mehringer of New York the sum of $2,584 is left to a number of institutions, including the Mount Sinai Hospital, the Sydenham Hospital, and the Montefiore Home and Hospital for Chronic Invalids.

BUREAU OF INFORMATION.—A Bureau of Information has been opened at the New York Academy of Medicine, under the direction of "The Society for the Advancement of Clinical Study in New York."

The object of this bureau is to furnish to visitors to New York, and the local profession, information on medical subjects, so as to make use of the large clinical opportunities that are always here, and which heretofore have not been readily available.

The Medical Profession of New York and Brooklyn is requested to furnish the bureau with information regarding such of their clinical work which they are willing any physician should visit. Surgeons are requested to send regularly each day, as early as possible, a list of the operations they have arranged for the following day. The Academy of Medicine, telephone, Bryant 974, is available for this purpose, or the mail may be used whenever there is sufficient time. An attendant in charge of the Bureau will be at the Academy daily after nine o'clock, for the express purpose of receiving all information, and promptly posting the same on the special bulletin board which has been installed. The attendant is ready to give every assistance in furnishing information.

Subscribers to "The Society for the Advancement of Clinical Study in New York" may arrange with the attendant to be notified when any special work in which they are interested is posted.

Any information as to autopsies, laboratory demonstrations, lectures, medical clinics, and operations is desired.

The Bureau is supported by funds furnished by "The Society for the Advancement of Clinical Study in New York" and the medical profession is urgently requested to lend their aid by joining the Society. For particulars apply to the attendant of the Bureau.

NEEDS OF NEW YORK UNIVERSITY.—Dr. Elmer Ellsworth Brown, chancellor of New York University, in his annual report to the university council, asks for $6,000,000 for the present needs of the institution; which is $1,000,000 less than President Butler, in his annual report, recently asked for those of Columbia University. Of this amount, Chancellor Brown states, $3,000,000 is required for the medical department (University and Bellevue Hospital Medical College), for endowment and the equipment of the university hospital. Other items among the needs mentioned are a new building for the Veterinary College and a gymnasium on the campus at University Heights.

FUND FOR NASSAU HOSPITAL.—The president of Nassau Hospital, at Mineola, Long Island, announces that, as a result of a recent twelve-day campaign in Nassau County, a little over $75,000 was raised for the hospital. At the same time he states that at the close of the campaign those who had been engaged in conducting it voted unanimously to continue their work, the feeling being generally expressed that, with a little additional effort, the full $100,000 hoped for could be secured.

APPOINTMENT OF DR. VON HOFMAN.—The board of regents of the University of the State of New York has appointed as secretary of the State Board of Medical Examiners Dr. Otto Von Hofman, of the teaching staff of the medical department of Columbia University, to succeed Dr. Maurice J. Lewi, who recently resigned after having served for more than twenty years in that position.

DEATH-RATE FOR 1912.—Health Commissioner Lederle reports that the general death-rate in the city for 1912 was the lowest ever recorded for a year—14.11. The infant death-rate was also the lowest on record. The following were among the decreases noted: Diphtheria

and croup, 48 per cent.; scarlet-fever, 38 per cent.; typhoid fever, 34 per cent.; measles, 30 per cent.; pulmonary tuberculosis, 17 per cent. The number of births reported was 135,625; which is 1,083 more than in 1911, though, taking into account the increase in population, the birth-rate, 26.22, is the lowest since 1906.

COST OF FIGHTING TUBERCULOSIS.—The statistics for the year 1912 collected by the National Association for the Study and Prevention of Tuberculosis show that of the estimated $19,000,000 spent in the United States in the campaign against tuberculosis, the State of New York has furnished $5,162,316. Of this amount, the public expenditures aggregated $3,805,556, and the private expenditures, $1,356,760.

MORTALITY FROM VEHICULAR TRAUMA.—The report of the National Highways Protective Society for the year 1912 shows that in the streets of New York City 532 persons were killed by vehicular traffic, of whom 230 were children. Of the total number, 221, including 103 children, were killed by automobiles, an increase of 79 over the mortality from this cause in 1911. It is stated that only one of these fatalities was attributable to taxicabs, all the rest being caused by private cars. In the State, outside of New York City, accidents on the streets and highways resulted in the death of 234 persons, of whom 127 were killed by automobiles; and there was an increase of 38 per cent. in the fatalities from these vehicles. A gratifying decrease, from 31 in 1911 to 1912, is noted in the deaths at crossings on the Long Island Railroad; a result due to the elimination of grade crossings and greater care on the part of railway emloyees.

TYPHOID MARY AGAIN.—It is reported that Mary Mullen, the celebrated typhoid carrier, familiar to the public as "Typhoid Mary," has dropped the suit for $50,000 damages which she brought against the New York Health Department for isolating her for three years and making it impossible for her to get employment as a cook.

HARVEY LECTURE.—The lecture in the current series before the Harvey Society announced for Saturday of last week, Jan. 18, on "The Prevention of Typhoid Fever," has been postponed on account of the illness of the lecturer, Major Russell.

Current Literature.

MEDICAL RECORD.

JANUARY 4, 1913.

1. DANA, C. L. *Mental Tests.*
2. BRANNAN, J. W. *Some Experiences with Anti-Typhoid Inoculation.*
3. *BROWN, J. S. *Conservative Treatment of Tuberculous Glands of the Neck, Based Upon Their Pathology.*
4. AUSTIN, C. K. *Recent Progress in Medical Renal Disorders.*
5. RUECK, G. A. *A Fatal Case of Gonococcus Septicemia.*
6. BUCKLIN, C. A. *Comparison of Internal and External Urethrotomies for Tight Strictures of the Male.*

3. Brown speaks favorably of his experience with conservative treatment of tuberculous cervical adenitis, *i.e.* along the lines of physiological surgery, rather than the so-called radical methods. Scrofula, he says, is tuberculosis of the patient, not merely of the glands. Complete extirpation of the disease is impossible and nature tends to cure if given opportunity. The glands have an important protective function, and should not be carelessly sacrificed. In a great majority of the cases the removal of the caseous masses by a proper technic is all the local surgery needed. The enzymes of yeast seem to be of benefit. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 4, 1913.

1. DANA, C. L. *The Doctor's Future.*
2. BRISTOW, A. T. *National Medical Insurance As Affecting the Future of the Doctor.*
3. BOLDT, H. J. *Cancer of the Uterus.*
4. GORDON, A. *A Contribution to the Study of Aphasia.*
5. WHITALL, J. D. *An Unusual Indication for Caesarean Section.*
6. PROESCHER, F. *The Etiology of Rabies.*
7. *CLOWES, C. H. A., AND BUSCH, F. C. *Treatment of Hemorrhage by Means of Precipitated Blood Sera.*
8. KAEMPFER, L. G. *Suspension Laryngoscopy.*
9. SHOEMAKER, H. *Infected Knee Joint.*
10. WAGNER, J. *A Cheap and Efficient Electric Headlight.*
11. LAKE, R. *Vertigo: A Clinical and Therapeutic Study.*

7. Clowes reports 21 cases in which precipitated blood serum, prepared by him, was used in the treatment of hemorrhage. The method of preparation employed consisted in precipitating fresh serum by means of an excess of a mixture of acetone and ether, and filtering under pressure to remove the precipitant. He believes that serum precipitated by means of such a mixture is as effective as fresh serum, if not superior to it. Precipitated serum is freely soluble and possesses the advantage over fluid serum of being sterile, always available, and retaining indefinitely its capacity to stimulate coagulation of the blood. The product obtained from horse serum gives more satisfactory results than that obtainable from the sera of other animals. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 11, 1913.

1. *REYNOLDS, E. *The Theory and Practice of the Treatment of Sterility in Women.*
2. v. NOORDEN, C. *Intoxication Proceeding from the Intestine, Especially Polyneuritis.*
3. KNOX, H. A. *The Moron and the Study of Alien Defectives.*
4. KNIGHT, C. P. *The Detection of the Mentally Defective Among Immigrants.*
5. NICHOLS, H. J., AND HOUGH, W. H. *Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid from a Patient with Nervous Relapse Following the Use of Salvarsan.*
6. LOWSLEY, O. S. *The Human Prostate Gland at Birth, with a Brief Reference to Its Fetal Development.*
7. KRETSCHMER, H. L. *A Case of Bilateral Urinary Lithiasis.*
8. SUTTON, R. L. *The Occasional Clinical Resemblance of Blastomycosis and Syphilis to Sporotrichosis.*
9. *CROTTI, A. *The Roentgen Ray in Intrathoracic Goiter and Thymus Hyperplasia.*
10. BLECH, G. M. *A Combined Bed and Emergency Cot.*
11. COLE, C. L. *Early Operation for Perforation in Typhoid.*
12. PARRISH, R. C. *Longitudinal Fracture of the Lower Extremity of the Radius.*
13. GLOGAU, O. *Othygroma Nephriticum. A Hitherto Undescribed Disease of the Ear-Lobe.*

1. Reynolds in a very interesting and well stated paper on sterility advances the theory that a too acid vaginal secretion or a thick tenacious cervical secretion may prevent the entrance of spermatozoa into the uterus and hence prevent pregnancy. The article deals interestingly with this condition of the tube and ovaries as causes of sterility and what can be expected from treatment.

9. Crotti believes that x-ray examination must become a part of the routine in goiter work. It is of the utmost necessity in intrathoracic goiter. As a thymus hyperplasia is liable to be a complication in any kind of goiter, especially in hyperthyroidism, and as this complication may prove fatal, the x-ray should be employed in every goiter case. When the diagnosis of thymus hyperplasia complicates a goitrous condition the operation should be postponed and x-ray treatment applied until a marked diminution of the gland is obtained. [E. H. R.]

THE LANCET.

DECEMBER 21, 1912.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on the Pharmacotherapy of Pneumococcus Infections.*
2. *LANE, W. A. *Chronic Intestinal Stasis.*
3. OPENSHAW, T. H., AND ROTH, P. B. *The Treatment of Pott's Disease, with an Analysis of 116 Cases.*
4. PATERSON, H. T. *Is Gastric Ulcer a Frequent Precursor of Cancer?*
5. *SINGER, C. *On the Secretory Activity of the Stomach in Chronic Appendicitis with Gastric Symptoms, with an Appendix Containing Clinical Descriptions of 19 Cases.*
6. *ROBERTS, J. L. *Early Signs of Mediastinal Tumors.*
7. LOVELL, A. G. H. *The Vaccine Treatment of Hay Fever.*
8. SIBLEY, W. K. *Abnormal Tuft of Hair and Plica Neuropathica.*

1. Wright in the second part of his paper upon pneumococcus infections, describes his results with Morgenroth's drug, which is claimed to have such remarkably beneficial effects upon pneumonia. His own results fail to confirm this view, and tend to show that this drug, *actylhydrocupreinhydrochlorate*, is not only not of any benefit, but dangerous.

2. Lane in a characteristic article describes the great benefits sure to result in chronic intestinal stasis from various short circuiting operations. These he describes in some detail.

5. Singer concludes as follows from his observations on the relation between chronic appendicitis and certain gastric symptoms: 1. Chronic appendicitis is frequently associated with gastric symptoms. 2. When this occurs, a gastric or duodenal ulcer may or may not be present, but in all cases analysis of the gastric contents shows marked abnormalities in the way of hypo-secretion. 3. These abnormalities can best be explained as due to toxic substances which act both on the stomach and on the appendix. 4. Removal of the appendix does not always relieve or improve the symptoms.

6. Roberts describes a few cases of mediastinal tumors and analyzes the prominent symptoms. The most important of these he believes to be venous obstruction, respiratory obstruction, pressure upon nerves, pain, and pericarditis. [J. B. H.]

DECEMBER 28, 1912.

1. MALINS, E. *A Short Review of Obstetrics and Gynecology.*
2. *DAVIES, H. M. *A Note Upon the Complete Removal of Pleural Effusions by the Regulation of Intrathoracic Pressure During Aspiration (Oxygen Replacement).*
3. CHANDLER, F. G. *A Case of Empyema in an Infant Aged Five Weeks, with Operation and Recovery.*
4. MORTON, W. C. *Is Anatomical Description Sufficiently Constructive?*

2. Davies describes his method by means of which he is able to bring about complete removal of a chest fluid, by replacing the effusion with oxygen. He maintains intrathoracic pressure by this means, and in cases where there has been collapse of the lung, which refuses to expand under ordinary measures by means of the oxygen, as it is gradually absorbed, he is able to bring about marked re-expansion. He gives the details of technic and several illustrative cases. [J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 21, 1912.

1. *MACKENZIE, J. *Some Manifestations of a Healthy Heart in the Young Frequently Taken As Indications for Treatment.*
2. LEWIS, T. *Absorptions Upon the Acoustic Phenomena in Mitral Stenosis.*
3. *ROOD, F. *Regional Anesthesia.*
4. FALCONER, J. L. *Case of Stokes-Adams' Disease.*
5. PHILLIPS, J. G. P. *Nervous and Mental Symptoms in a Case of Addison's Disease.*
6. SOMERVILLE, W. F. *High-Frequency Currents in Trigeminal Neuralgia.*

1. Mackenzie calls attention to certain cardiac abnormalities quite consistent with perfect health, but frequently mistaken for evidence of grave cardiac disease. Chief among these is irregularity in the heart's action. He discusses these irregularities and gives tracings, and then briefly considers the best means of estimating the heart's real strength and functioning power.

3. Rood describes his method of producing anesthesia confined to certain regions by means of

strong solutions of novocain introduced in small amounts around the nerve trunks which supply the part to be operated on, at some part of their course which is anatomically accessible. This method has certain manifest advantages over local infiltration methods of producing anesthesia. Bone, muscle, fascia, skin, are all rendered anesthetic; no edema is caused; anesthesia lasts for several hours. He describes details of technic in using this method in various parts of the body, and tabulates a series of 164 cases. An accurate knowledge of anatomy is necessary. [J. B. H.]

DECEMBER 28, 1912.

1. *EWART, W. *The Pre-Operative Diagnosis of Appendicitis. Demonstration of a New Method of Dorsal Examination.*
2. THORNE, M. *Theories with Regard to Secondary Growths in Carcinoma of the Breast.*
3. GREEN, L. B. *Foreign Body in the Abdominal Cavity.*

1. Ewart in an elaborate paper describes the possibilities of dorsal percussion over the "resonant sacral and iliac surfaces," and the utilization of these areas in diagnosing appendicitis. He supports his theory with many illustrative cases. His remarks are of interest, but it is extremely doubtful if the methods he describes will be accepted as of value in the diagnosis of acute abdominal conditions. [J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 52. DECEMBER 26, 1912.

1. *BÁRÁNY, R. *Localization in the Cortex of the Cerebellar Hemispheres of Man.*
2. STIEFLER, G. *A Case of Primary Symmetrical Brachial Plexus Neuritis as a Symptom of Late Syphilis.*
3. ZOGRAFIDES, A. *Chronic Hypertrophic Catarrh of the Lingual Tonsil.*
4. HATIEGAN, J., AND DÖRI, B. *The Clinical Comparison of the Ewald-Boas and of the Mintz Test Breakfast.*

1. Bárány believes that there is a very definite localization in the human cerebellar cortex. The coordinative centers for the extremities are found in the superior and inferior semilunar and in the biventral lobules of the corresponding sides. The author describes other centers which he considers that he has located clinically and experimentally. He points out also the important fact that tubercle may develop latently in the substance of the cerebellum, as in the motor region, in the internal capsule, and in the pores, and may run its course without showing any definite signs. [R. M. G.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BAND 75. HEFT 5 AND 6.

1. PELLITZER, H. *Types of Regeneration and Degeneration of the Blood in Anemia.*
2. GOLDSCHMIDT, H. *Measurement of Intensity of Heart Sounds.*
3. GEORGOPOLUS, M. *Relation of Parathyroid Glands to Chromaffin System.*
4. CENZEN, F. *Glycuronic Acid Excretion in Man.*
5. NEMENOW, M. *Treatment of Leukemia by X-ray.*
6. FREY, W. *Two Fatal Cases of Mushroom Poisoning.*
7. MOSLER, E. *Physiological Arrhythmia.*
8. *STIERLIN, E. *X-ray Diagnosis of Ulcerative Colitis.*
9. *ROTKY, H. *Permeability of the Meninges to Chemical Substances.*
10. *HIRSCHFELD, H., AND JACOBY, M. *Transmitted Leukemia of Fowl and Its Relation to Tuberculosis.*
11. *POPOFF, P. M. *Aortitis and Fever.*

8. Stierlin was able correctly to diagnosticate and localize a chronic ulcer of the ascending colon by x-ray. He first fed the patient with 30 grams of bismuth suspended in water, and after 7 hours obtained a picture which showed the ulcer with distinct dark edges and light centre. In order to localize it more accurately, he filled the large intestine with a strong solution of barium and later gave a bismuth pap mixture (30 gms. Bi. to 200 gms. bread): 14 hours after the administration of the former and 7 hours after the latter, he obtained a picture which showed in pale but distinct outline the rectum and descending colon, from the Bi. injection, and the ascending colon standing out dark and prominent, this time with the ulcer a jet black. The ulcer was verified in position and description post mortem.

9. Rotky concludes that the meninges allow chemical substances to pass into the spinal fluid by purely physical means (filtration, diffusion, etc.). He finds that few things will pass through even if the meninges be diseased, as in tubercular meningitis and tabes. For example, salicylate of sodium, diuretin, pyramidon, bile coloring matter, mercury and iodine were never found even after prolonged and excessive administration, whereas urotropine and uranin appear in one or two hours, regularly. Bromine for the most part is not thus found, but once appeared after prolonged use.

10. Tuberculosis and leukemia in fowl have no relation, say the authors in contradiction to other workers. They have repeatedly produced tuberculosis by inoculation without getting leukemia. On the other hand, a filtrate of organs (liver, spleen and bone marrow) from a case of leukemia will, if introduced intravenously cause leukemia, and further, the response does not appear to depend greatly upon the amount of filterable virus introduced.

11. Popoff thinks that fever of low grade is a frequent accompaniment of aortitis, and gives three case histories to illustrate. That aortitis, in 9 cases out of 10, is syphilitic in origin is his belief. In any case of inexplicable, long-continued, low grade fever of the tubercular type, with temperature just below normal in the morning and just above normal at night, aortitis should be considered and carefully looked for. [J. B. A.]

REVUE DE CHIRURGIE.

DECEMBER, 1912.

1. *LERICHE, R., AND COTTE, G. *Emergency Cholecystectomy in the Acute Calculous Cholecystitides.*
2. *JOHANSSON, S. *Contribution to the Study of Biliary Perihepatitis with Biliary Extravasation into the Peritoneum without Perforation of the Biliary Apparatus.*
3. NEY, E. *The Rôle of the Veins in the Collateral Arterial Circulation.*
4. *CHALIER, A., AND BONNET, P. *Primary Melanotic Tumors of the Rectum.* (To be continued.)

1. The authors report seven cases of immediate surgical intervention, with cholecystectomy, for acute calculous cholecystitis.

2. In this translated article, is reported a case of cholecystectomy, with drainage, for perihepatitis due to biliary effusion into the peritoneum without demonstrable macroscopic perforation of the gall-bladder or of the biliary ducts. Four similar cases, collected from the literature, are presented.

4. In this continued article the authors report, from Jaboulay's clinic at Lyons, a case of melanosarcoma of the rectum, with multiple metastases, and collect 63 similar cases from the literature.

[R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

AUGUST, 1912.

1. *DALLA FAVERA, G. B. *The Serodiagnosis of Syphilis by Means of the Conglutination Reaction (Karvonen's Method).*
2. AVONI, A. *Myo-Adenoma of the Broad Ligament.*
3. MARCHESINI, O. *"Consecutive Fever" in Scarlatina.*

1. From a clinical comparison of the Karvonen conglutination method, as a modification and simplification of Wassermann's original reaction, the author concludes that it has a notable diagnostic value in the serodiagnosis of syphilis. Its technical difficulties are little, if any, less than those of the Wassermann test; in secondary and tertiary syphilis, with active manifestations, it gives equally good results; but it is more sensitive in cases of initial syphiloma, in latent syphilis, and in parasyphilitic affections. Nevertheless Karvonen's method has certain inconveniences not presented by the Wassermann reaction; for which reason the author believes that it will not replace the Wassermann test as a routine, but should be retained as a valuable diagnostic complement and auxiliary in doubtful cases. [R. M. G.]

SEPTEMBER, 1912.

1. MARTELLI, D. *Contribution to the Study of Multiple Primary Sarcomata of the Bone-Marrow.*
2. *STRETTI, G. *Lumbar Puncture in Cranio-Encephalic Traumatisms.*

2. Stretti reports 46 cases in which lumbar puncture was done as a diagnostic and therapeutic measure in cranio-cerebral trauma. He discusses its technic and value, and presents an excellent bibliography of 29 titles on the subject. [R. M. G.]

OCTOBER, 1912.

1. CONDULMER, P., AND CALCATERRA, W. *Dry Iodosaline Inhalations, by Körting's System, in 46 Pupils of the Elementary Schools of Bologna Affected with Diverse Lymphatic Manifestations.*
2. *ROCCHI, G. *Immune Reactions in Surgical Diagnosis.*

2. Rocchi reports from his personal clinical experience that the Bordet and Gengou reaction is of negative or uncertain value in the diagnosis of tuberculosis and malignant disease, of some use in the diagnosis of echinococcus, and valuable in the diagnosis of syphilis; that the meiostagmin reaction is of little advantage in surgical diagnosis; and that the epiphanin reaction is of possible value with a technical simplification which he proposes. He presents an admirable alphabetic bibliography on each of the three tests. [R. M. G.]

NOVEMBER, 1912.

1. BOSCHI, E. *In Memory of Luigi Mazzotti.*
2. *FORNI, G. *Contribution to the Study of Plastic Linitis.*

2. Forni reports completely a case of this rare condition, with an alphabetic bibliography of 126 titles on the subject. [R. M. G.]

Obituary.

EDWARD CURTIS, M.D.

DR. EDWARD CURTIS, one of the most distinguished physicians of New York, died on Nov. 28, 1912, in the seventy-sixth year of his age. He came of an old and prominent New England family, and was born in Providence, R. I. Among his ancestors were two presidents of Harvard, Samuel and Joseph Willard, and his father was the late George Curtis, who was president of the Continental Bank of New York and a vice-president of the New York Chamber of Commerce. One of his brothers was the eminent George William Curtis, and another brother, also distinguished, is Dr. John Green Curtis, now emeritus professor of physiology in the College of Physicians and Surgeons, New York, the medical department of Columbia University. Dr. Curtis was graduated with high honors from Harvard in 1859, and the following year commenced his medical studies in the school just named. These were interrupted, however, by the outbreak of the Civil War, early in which he entered the Federal Army as an officer on the staff of the Surgeon General. Later he resumed his professional education in the medical department of the University of Pennsylvania, from which he was graduated in 1864. The following year he was chosen, despite his youth, to assist Dr. Woodward, of the Surgeon General's office, in making the autopsy on the body of President Lincoln. At this time he held an appointment in the microscopical department of the Army Medical Museum in Washington, and the results of his work there in developing the art of microphotography gained a worldwide celebrity for that institution. He was also among the first to make astronomical photographs through the telescope, and in 1869 was appointed on the commission from the U. S. Naval Observatory to observe and report upon the total eclipse of the sun. In 1870 he resigned from the medical staff of the Army to take up private practice in New York, and in 1874 was appointed professor of materia medica and therapeutics in the College of Physicians and Surgeons, a position which he held until 1886, when he was made professor emeritus. Among the other positions which he occupied at various times were microscopist to the Manhattan Eye, Ear and Throat Hospital, surgeon to the New York Eye and Ear Infirmary, president of the New York Ophthalmological Society, and honorary microscopist to the New York City Health Department. In addition, he served, most of the time with the late Dr. Edward W. Lambert, as medical director of the Equitable Life Assurance Company from 1876 to 1904, when he retired on account of ill health. Among the published writings of Dr. Curtis, besides various papers in medical and other scientific periodicals, were "A Manual of General Medical Technology," "Nature and Health," and a number of articles in Wood's "Reference Handbook of the Medical Sciences," and Johnson's "Universal Cyclopaedia." He is survived by his widow, who was Miss Augusta Stacey of Chester, Penn., two sons, and three daughters.

Miscellany.

CENTENNIAL MEMORIAL OF DR. JAMES MARION SIMS.

ON January 25, 1813, in Lancaster District, South Carolina, was born James Marion Sims, later to be known as one of the earliest and most famous of American gynecologists. His life and professional achievements are too familiar to readers of the JOURNAL to require repetition. The occasion of the centennial anniversary of his birth has not been marked by any important commemoration; but his name and his discoveries will live forever in medical history. Dr. Sims died on November 13, 1883, and his obituary notice was published in the issue of the JOURNAL for November 22 of that year (Vol. cix, p. 501). In conclusion, this notice says of him: "His kindness of heart, his uprightness of character, his geniality, his boundless generosity, and his personal magnetism, made him universally beloved and esteemed; and of scarcely any other American can it be said, with equal truth, that he created a new era in medicine." On November 25, 1884, a bronze bust of Dr. Sims was presented to the Boston Medical Library by an anonymous donor; and at the meeting held on that date to accept it, Dr. Oliver Wendell Holmes said: "Dr. Sims stands upon record as one of those benefactors of the race whose contributions to human welfare. . . will carry his name to posterity on the list of those who have deserved the grateful remembrance of all mankind."

MODERN IDEALS FOR BOARDS OF HEALTH.

AT the annual meeting of the Massachusetts Civic League, held recently in Boston, Professor William T. Sedgwick, of the Massachusetts Institute of Technology, delivered an address on "Modern Sanitation and Modern Ideals for Boards of Health," in which he undertook to formulate and explain the standards of the present day for public health work.

"The older sanitation consisted largely of precept, while the new sanitation consists of practice no less than theory, requiring change of habit no less than change of heart. New activities and new ideals have risen for Boards of Health. In the past Boards had been too political, too ready to drift, too unwilling to dictate or even to lead. The public is eager to be led toward better living, better homes, beter food, better water, better milk, cleaner streets, more wholesome workshops and better heating, lighting and ventilation. Hence it has come to pass that the time is ripe for better Boards of Health, which shall lead and not merely follow—boards which shall have courage and hold up high standards.

"Massachusetts has long led with her State Board of Health, and the Civic League can perhaps do no more useful work than to urge upon the people that the time has now come to organize far better local Boards, to be composed of better material, better officered and better equipped. The call to public health was never greater, the profession never nobler or more attractive than today. The medical profession is alive to the opportunity. The engineering profession is ready to lend its aid. Nurses abound, eager and willing to work for the public health. Dozens of young sanitarians would gladly enter the new field if they felt sure of a welcome and reasonable tenure of office."

COMMITTEE REPORT OF THE AMERICAN SANITORIUM ASSOCIATION.

The Committee on the subject of "The Minimum Clinical Laboratory Examinations Suitable for Tuberculosis Sanatoria" begs to submit the following report:

Your Committee has endeavored to consider the question from the standpoint of the one man institution and to indicate only that work which is to their minds essential.

As regards sputum examination, we would recommend the following:

Examinations to be made on admission and on discharge, and at least at three-month intervals during residence.

Examination tbc.; smear method, two smears from different parts of specimen; stain Ziehl; Niellson; fuchsin; acid; alcohol. Microscope, three minutes to a slide. If negative, repeat on second and third day, using anti-formin method; and if still negative once a week for at least three weeks, and for a longer period if possible.

As regards urine:—

On admission morning urine to be tested for albumen by heat and by nitric acid. If positive, 24 hour specimen tested with Esbach's albumenometer.

Sugar test; Fehling's reagent; quantitative if sugar be present. Microscopic examination for casts; stain smear for tbc. in suspected cases.

No future urinalysis needed in normal cases unless complications arise.

Pleural exudates and abscess pus; smear stain for tbc.

Blood: No routine examination recommended.

In cases presenting complication, the laboratory should be prepared to:—

Analyze stomach content after test breakfast.

Take cultures from fauces or tonsils for suspected diphtheria.

Make leucocyte count in suspected appendicitis, etc.

Examine for malarial plasmodia.

Examine for suspected leukemia.

Arrangement should be made with the nearest available laboratory for animal inoculation

when needed; Wassermann test; Widal test; pathological sections and all special work requiring considerable time and apparatus, as inoculation of pigs with suspected sputa.

It is the opinion of your Committee that the head of a sanatorium, with a small medical staff will be able to get the most value from his work if he limits his laboratory routine in all uncomplicated cases to the simple examination stated.

(Signed)

WALTER C. KLOTZ, *Chairman*,
EDWARD R. BALDWIN,
DAVID R. LYMAN.

Correspondence.

THE NOSE AS AN AVENUE OF INFECTION.

January 4, 1913.

Mr. Editor: I am glad to note that in continuing the presentation of the subject of "Mechanics of Percussis" you state again my own observation that "Inoculation was found to be unfailingly and most easily induced by slow injection through the nose."

Your truly,
EDMUND D. SPEAR, M.D.

INVESTIGATION OF THE ALIMENTARY TRACT BY RÖNTGEN RAYS.

Buffalo, N. Y., Dec. 17, 1912.

Mr. Editor: Referring to Dr. Percy Brown's excellent article on Alimentary Aberrations: The Röntgen Rays as a Factor in their Diagnosis, in your issue of Dec. 12, 1912, allow me a few words regarding the history of this method.

So far as I can learn, the very first demonstration that the stomach —and hence other organs—could be located by the shadow of a harmless substance introduced within the organ, was by Roux of Paris in 1896, using bismuth. Previously, Turck of Chicago (recently of New York) had reported the localization of the stomach by opaque sounds. During the winter of 1896-7, I was at work on the same problem, using capsules containing reduced iron and also emulsions or rather watery suspensions of bismuth subcarbonate. Quite early in the winter, I demonstrated the capsules in the mouth fluoroscopically. In the spring, at a meeting in the Dental Department of the University of Buffalo, I attempted to get a radiogram of such capsules within the stomach but failed or rather, in the light of modern experience, was not sufficiently optimistic about a streak obtained on the plate, as I looked for a distinct shadow. Early in July, 1897, working with a better machine, and going back to the fluoroscope, both the iron tablet capsule and the bismuth suspension gave satisfactory results in a series of about a dozen cases. The capsule, especially, showed gastric peristalsis, the shadow appearing and disappearing, thus explaining the previous relative failure of radioscopy. My work was first reported in print, in *Medicine* (Chicago, now defunct) in Feb., 1898. In the same month, Boas and Dorn reported the same method in a foreign journal, all of us working independently.

These were, of course, crude beginnings but they rapidly led to observations, becoming more and more critical, as larger and larger numbers devoted themselves to the study. Without, in any way, belittling the magnificent work of Rieder, Dr. Brown's statement, "Some sporadic observations, by means of the bismuth method had been attempted prior to 1904, but it remained for Rieder of Munich to demonstrate what could really be done," does not do justice to the facts. In Buffalo, at least, and probably for every American city, the bismuth method was in almost routine use for four years before this time. The 1905 meeting of the American Gastro-enterologic Association was held April 24 and 25, the papers obviously having been in preparation for months in advance. Cannon presented a paper on Recent Advances, touching on various x-ray investigations, dating back several years but not mentioning Rieder. X-ray methods are mentioned by several others in the transactions, casually, as routine procedures, without any impetus from Rieder. In 1904, brief mention is made of x-rays in the differential diagnosis between gastric ulcer and gall-stones and, in 1903, Turck mentions x-ray examinations of gastric peristalsis in dogs.

In addition, the discussion of the safe dose of bismuth, and the danger of impure preparations, ascribes undue credit to Rieder for the matter had already been threshed out with reference to the therapeutics of gastric ulcer, etc.

As already implied, it is not the purpose of the writer to depreciate the well deserved reputation of Rieder but to point out that the x-rays have been studied by a large number of men, that the perfection of instruments and of technic and the acquisition of experience, have been gradual, and that it is unjust to single out any one man to the disparagement of others.

Truly yours,
A. L. BENEDICT, M.D.

SURGICAL NEEDS OF FOREIGN MISSIONS.

Mr. Editor: The American Board of Commissioners for Foreign Missions is carrying on a most extensive medical work in Turkey, India, China, Africa and the Islands of the sea. We have about fifty thoroughly equipped physicians in charge of this work who treated last year nearly 400,000 patients in the hospitals and dispensaries connected with their work. Nearly every one of the hospitals is in such an isolated position with relation to other modern medical facilities that the physician or physicians in charge are compelled to be experts in almost every department of medicine and surgery, and every surgeon must have himself all the instruments required for the performance of the operations which he must undertake.

As an illustration of the operations performed, a statement just received from the physician in charge of a hospital at Cesarea, in Asia Minor, reports in ten months, 91 abdominal operations, and over 800 other operations performed by himself. In a report just received also, from Northern Syria, Turkey, covering a period of nine months, the operations performed were 666, 209 of which were eye cases, 21 for urinary calculi, 61 bone cases, and 65 abdominal; in the period named, 5492 patients were seen, with 394 patients in the hospital.

John C. Berry, M.D., of Worcester, Mass., a member of our administrative board, has suggested to me that many physicians have serviceable surgical instruments in their possession which they are not using and will undoubtedly never use again, in view of their being displaced by something more modern. Such instruments would be of immeasurable value to these physicians who are out beyond the frontiers of civilization, striving under most hampering conditions to meet the medical and surgical needs of people who otherwise would have no modern aid whatever.

Any such instruments given to the American Board of Commissioners for Foreign Missions would be forwarded to these physicians where the need is greatest and would at once be put into great service. They may be sent to John G. Hosmer, 14 Beacon Street, Boston, Mass.; to Edward Lincoln Smith, D.D., Fourth Avenue and 22d Street, New York; to A. N. Hitchcock, D.D., 19 South La Salle Street, Chicago, Ill.; or to H. M. Tenney, D.D., Mechanics Bank

Building, San Francisco, Cal. If wo could know the name and address of the donor we would be glad indeed to report the disposal of the instruments, and, if desired, put the donor into correspondence with the physician who receives them.

JAMES L. BARTON.

January 10, 1913.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library at 8.15 P. M., on Saturday, January 25, 1913.

The following papers will be read:

1. (*a*) A Case of Blood Cyst of the Chest Wall in a Child. (*b*) Non-Union of the Clavicle in a Child. A case with a lesson and x-ray photograph. Dr. William P. Coues.

2. Infantile Beriberi in the Philippines. Dr. Donald Gregg.

3. Differential Diagnosis of Tubercular Joints in Childhood. Dr. E. G. Brackett.

Light refreshments will be served after the meeting.

JAMES S. STONE, *President.*
FRITZ B. TALBOT, *Secretary.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 27, at 8.15 P. M.

MEMORIAL TO DR. ARTHUR TRACY CABOT.
DR. HENRY P. WALCOTT,
DR. PAUL THORNDIKE,
DR. JOHN B. HAWES, 2nd.

The annual business meeting will be held at 9 P. M. Members of the Suffolk District Medical Society are cordially invited to attend.

ROBERT M. GREEN, M.D., *Secretary.*

78 Marlborough Street.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, January 28, at 8 o'clock .

Telephone, Roxbury 22753.

Business. Communications: "Some Biological and Bacterial Problems Pertaining to Intestinal Bacteria," Theobald Smith, M.D.

Refreshments after the meeting.

BRADFORD KENT. M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.—A meeting of the Society will be held at the Boston Medical Library on Tuesday, January 28, 1913, at 8.15 P. M.

1. Presentation of patients, specimens, instruments, and case reports.

2. Paper: "Carcinoma of the Prostate," Dr. J. T. Geraghty, of Baltimore.

Discussion, Drs. F. S. Watson, P. Thorndike, E. L. Keyes, Jr., N. Y., H. Cabot and others.

DR. R. F. O'NEIL, *Secretary.*
379 Beacon St., Boston.

RECENT DEATHS.

DR. JAMES E. BOTHFELD, who died on Jan. 12 at Newton, Mass., was born in New York City on Oct. 14, 1865. He graduated from Boston University Medical School in 1887. After practising for a time in Concord, N. H., he settled in New York, where he remained until 1895, when he removed to Newton. He was surgeon to the Newton Hospital, a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by his widow and by one daughter.

DR. MORTIMER HALL CLARKE, who died on Jan. 13 in Auburndale, Mass., was born at Newburyport, Mass., in 1860, the son of a physician. He received the degree of A.B. from Harvard College in 1883, and that of M.D. from Boston University in 1888. After serving as house officer at a hospital in Brooklyn, N. Y., he settled at Auburndale, where he remained actively engaged in the practice of his profession until his death. He was a member of the Massachusetts Surgical and Gynecological Society and of the Boston Homeopathic Medical Society. He is survived by his widow.

DR. EWEN MCINTYRE, who died of pneumonia on Jan. 9, in New York City, was born at Johnston, Fulton County, N. Y., in 1825. He graduated from the New York College of Pharmacy in 1847, of which in later life he was for many years president as well as of the American Pharmaceutical Association. He is survived by his widow, by five daughters and by four sons.

RESIGNATION.

DR. BURDETT L. ARMS has recently resigned as director of the bacteriological laboratory of the Boston Board of Health.

APPOINTMENT.

DR. WILLARD D. BIGELOW has been recently appointed a member of the Board of Food and Drug Inspection of the United States Department of Agriculture.

BOOKS AND PAMPHLETS RECEIVED.

Yale Review, Vol. II, No. 2. Sugar at a Glance, by Truman G. Palmer, Washington, D. C. 1912.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 11, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	14	4
Chicago	—	—	Waltham	12	1
Philadelphia	—	—	Brookline	8	1
St. Louis	—	—	Chicopee	9	2
Baltimore	—	—	Gloucester	7	—
Cleveland	—	—	Medford	7	1
Buffalo	—	—	North Adams	6	2
Pittsburgh	—	—	Northampton	9	1
Cincinnati	—	—	Beverly	7	—
Milwaukee	—	—	Revere	7	2
Washington	—	—	Leominster	4	2
Providence	—	—	Attleboro	3	—
Boston	278	71	Westfield	6	1
Worcester	51	12	Peabody	—	—
Fall River	47	25	Melrose	8	1
Lowell	37	7	Woburn	7	2
Cambridge	36	8	Newburyport	2	1
New Bedford	33	13	Gardner	5	1
Lynn	17	—	Marlboro	6	1
Springfield	31	6	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	20	3	Adams	5	3
Holyoke	18	7	Framingham	—	—
Brockton	13	2	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	14	2	Southbridge	3	3
Salem	16	4	Plymouth	—	—
Newton	12	2	Webster	5	—
Fitchburg	9	4	Methuen	—	—
Taunton	14	4	Wakefield	—	—
Everett	12	—	Arlington	—	—
Quincy	—	—	Greenfield	5	2
Chelsea	15	4	Winthrop	5	1

JOHNS HOPKINS HOSPITAL
FEB 1 1913
Library

Original Articles.

A CONSIDERATION OF SEVENTY-SIX OPERATIONS IN WHICH LANE BONE PLATES WERE USED.

BY WILLARD BARTLETT, A.M., M.D., ST. LOUIS, MO.

No procedure in all surgery appears more convincing at the operating table than does the Lane method of treating fractures, especially in the hands of its expert author. However, its actual value can be established only by a study of end results.

In these 76 patients the following bones were broken: clavicle, 7; humerus, 17; radius, 1; radius and ulna, 3; ulna, 4; femur, 17; tibia 15; tibia and fibula, 9; fibula alone, 3.

I have been able to trace just half of these patients for periods ranging from two to twenty-nine months after operation, and since I shall be very frank about their histories it is only fair to the method to state that the other 38 are known to have left the hospital alive and most of them in better shape than when they entered. Many walked out in full health, without dressing, splint or crutch, but some were removed in the original cast and dressing at the end of one or more weeks. Since I know that complications are possible during an indefinite period, I prefer to consider none of those of whom I can give no accurate details since they left the hospital.

Among the 38 which have been traced, there were 22 simple, and 16 compound fractures. Of the latter, 12 were fresh or granulating when the plate was introduced; while 4 were suppurating at the time of operation.

Of these 38 patients, 13 are known to have had their plates removed. Four plates had to be taken out in simple fractures and 9 in compound.

Seven of these 38 results are considered failures by me, and since we frequently learn more from our failures than from our successes, the details of these will be given in their entirety.

UNSATISFACTORY RESULTS.

CASE 1. M. M., female, aged 50, was admitted September 12, 1910. History: drinks beer and whiskey, at times to excess, syphilis, positive and tertiary stage evident as shown by nasal deformity.

Patient gave a history of suffering for the past fourteen weeks from a non-union of a fracture of the left femur at the junction of the upper and middle thirds.

September 13th the bone was squared off and a six-screw Lane plate was applied.

The first few days of the patient's convalescence were uneventful until the nurse found her intoxicated, and several days later she developed an attack of delirium tremens, the entire occurrence taking place in a large ward. She took no care of her limb, the cast becoming saturated with urine and discharges. Some ten days after the operation she ran a slight temperature, and on cutting a window into the cast we found that the wound was infected, the cast having been thoroughly saturated with discharges. The patient died on September 28th of septicemia.

This patient was badly chosen and should not have been subjected to operation at all.

CASE 2. L. B., male, aged 48, was admitted December 16, 1910. History of falling on the left shoulder on December 14th, two days previous to admittance, while in an intoxicated condition.

December 18th, under ether anesthesia, a four-screw Lane plate was applied to a very oblique fracture. A silver wire was slipped beneath the clavicle and adjusted in such a manner as to hold the plate and the fragments of bone in perfect position.

The patient was returned to the division and he complained of pain in the right chest shortly afterward. On the 26th at 2.30 P. M., eight days after the operation, the patient died of a cardiac failure, secondary to pneumonia. Examination showed the wound to be healing by first intention.

This man's life was lost in an attempt to restore the integrity of a bone which was of very little use to him at best. I now use a local anaesthetic for the clavicle.

CASE 3. M. K., age 36, male, laborer, entered January 30, 1911, having been run over by a train. Had compound fracture of the right leg. Both bones being broken, the tibia very obliquely, causing the lower half of the leg and foot to dangle.

After thorough cleansing of the wound, a four-screw heavy Lane plate was applied. The ends had been squared off so that the fragments would approximate well. Infection, however, was severe and much sloughing took place. The third week after plating, plate became loose and was removed on February 20th.

May 1911 patient still in hospital receiving dressings. Had severe secondary hemorrhage.

It must be admitted that the plate did no good at all in this case.

CASE 4. T. G., male, age 22, entered August 16, 1911. He had been unloading logs from a railroad flat-car when one had become accidentally detached and rolled across his thigh causing a compound fracture of the femur.

A six-screw Lane plate was applied and the soft parts tightly sutured. The plaster cast was not opened for five weeks when the evidence of a mild infection was found. The patient's family physician thrust a probe into the depths of the wound and serious trouble commenced. When I saw him again on November 24th, he was pale, emaciated and septic. After removing his plate and instituting thorough drainage, he remained several weeks in the hospital and was discharged with a firm union and satisfactory physical condition.

November 1, 1912 he reports himself as being in fairly good condition although depending somewhat for support upon one crutch.

This man is no better off than if I had never operated upon him.

CASE 5. H. R., male, age 8, was admitted February 6, 1912. He had been run over by a street car a few hours before I saw him and was discovered to have a fracture about the middle of the tibia, both fragments presenting widely through an extensive laceration of the soft parts.

A six-screw Lane plate was immediately applied and the parts accurately approximated. The child immediately developed an extremely high temperature and died three days later of what was supposed to have been cerebral fat embolism, although this is not definitely known since no autopsy was permitted.

I naturally blame myself in this instance for doing anything at all while the patient was depressed by the immediate effects of a street-car injury.

CASE 6. O. G., male, age 20, was admitted February 23, 1912. He had just been struck by a railroad train and presented a compound fracture of the left radius and ulna.

Through his accidental wound a four-screw Lane plate was applied to the radius. The wound was packed and free drainage thus instituted.

On account of circulatory disturbances and gangrene, the arm had to be amputated one week later. The screws were found to be holding firmly at the time.

My short operation, done under a local anesthetic, apparently had no influence in determining the result in this case. I call it a failure because it was of no ultimate avail.

CASE 7. L. W., male, age 40, operated upon March 9, 1912. He had a compound fracture low in the shaft of the tibia which had been plated unsuccessfully. When I saw him the wound was full of pus and the first bone plate was sticking out. I applied a second one and found the lower fragment so lacking in cortex that screws would not hold well in it, hence a heavy silver wire was wrapped around it and the lower end of the plate. Suppuration continued and at the patient's urgent request the foot was amputated by another surgeon a few weeks later.

In this instance my operation did no harm, apparently, but it did no good, hence it is classed as a failure.

My mortality in this work has been 3.9 per cent. It can, however, not properly be credited to the method, as such, but rather to the operation, I fear. In future I shall abstain from general anesthetics when merely a functional result is contemplated in a chronic alcoholic, and forego bone work until primary shock is past. An observance of these considerations in the past would have left me a clean score as far as mortality in 76 cases is concerned.

Now follows an abbreviated description of the 31 cases which I trust I may consider successes. In the light of present experience I cannot say positively that operation was necessary in every instance, but at least all of the patients are well at the present time or were greatly improved when last heard from.

CASE 8. M. B., female, age 38. Eight months ago the leg was fractured about four inches above the knee, and skiagraph showed the bone to be overlapping about two inches and set at an angle of 30 degrees. The patient is unable to put her weight on it.

June 6, 1910, I screwed a plate on the outer side of the bone and applied a plaster cast after squaring off both ends.

September 1, 1910, the union was perfectly solid and she bore part of her weight on it, but being very heavy feared to walk without a crutch.

May 15, 1911, she walked without a support for a short distance without discomfort. After prolonged use of the leg she was likely to experience pain next day. It was referable to the site of an old injury. This became so annoying that on February 28, 1912, I had to remove the plate, one end of which was sticking into surrounding muscles. Since this second operation she has been entirely free from discomfort and walks without any support about her house, but on the street uses a crutch or cane, she being an extremely heavy woman. It may be said that she is greatly improved; when I first saw her, she was confined to bed and unable to swing the foot with the rest of the leg.

CASE 9. W. C., age 18, male, machinist, was admitted September 30, 1910, suffering with a fracture of practically all the ribs on the left side, fracture of both bones of the forearm about the middle, fracture of the left humerus about the musculospiral groove an a fracture of the right femur with a dislocation of the knee-joint.

October 7, the muscolospiral nerve did not respond to faradic current; very slight lateral movement of fingers present. Röntgen-ray at that time showed a transverse fracture of the left humerus of radius and ulna at lower one-sixth and a second fracture of ulna at upper two-thirds of bone.

November 15, 1910, the musculospiral nerve was found and traced up to the musculospiral groove on the back of the left humerus. It failed to react to electrical stimulants, while the triceps muscle responded. The excessive callous around the musculospiral groove was removed with the aid of a chisel, and a portion of the fascia sewed beneath the musculospiral nerve so that the nerve did not come directly in contact with the bone at the point where the callous had been chiseled away.

We applied a four-screw Lane plate, after removing callous and making groove for the plate. Approximation was perfect.

May 30, 1911, patient was seen, examination showing a complete regeneration of the musculospiral nerve, all fractures firmly united, function perfect, there being only slight impairment in supination of the forearm. In all, this was a very bad case with a beautiful result.

CASE 10. J. M., age 30, male, laborer, admitted October 7, 1910, with a history of falling off a clay car. Fracture of tibia and fibula about the junction of lower and middle thirds.

October 11, 1910, a four-screw Lane plate was applied so that two screws were in each fragment.

The cast was removed on November 7, 1910 and he was discharged November 12, 1910, having made an uneventful recovery.

On May 23, 1911, he returned. There was no edema, perfect scar, alignment of the bone perfect, no shortening or deformity; had attended the St. Louis University Clinic, where a surgeon had removed the plate. He complains of slight pain at the time of writing.

CASE 11. J. D., age 56, male, teamster, was admitted October 30, 1910. A plating operation had been performed November 3, 1909, by another practitioner.

November 22, 1910, the patient having a musculo-

spiral paralysis, Dr. Schwab recommended inspection of the musculospiral region, which was done, and the plate found to crush the lower portion of the nerve against the bone. The nerve failed to show conductively to electrical stimulants, and degenerated end was cut away; neurorrhaphy was then carried out. Plate was replaced.

The patient left the hospital and was seen May 27, 1911. The alignment of the humerus was good; there was no waist drop, although the grip was still weak. The result was far better than had been expected.

CASE 12. A. B., age 32, male, teamster, entered the hospital November 8, 1910. Gave a history of having had his leg crushed by a grate falling on it.

Skiagraph revealed a transverse fracture of the tibia with about 1¼ inch over-lapping.

November 10, 1910. The lower fragment of the tibia was well exposed, showing a marked protruding upward and forward and an over-riding of the upper fragment for a considerable distance, probably 1¼ inch, with the soft tissues interposed between the fragments. A six-screw Lane plate was applied.

On November 25, 1910, he was discharged from the hospital. On May 23, 1911, patient called. The result was found to be ideal, no shortening, no deformity. The alignment of the tibia was good. Pain practically absent. Referred to the City Hospital for X-ray, which showed perfect alignment.

CASE 13. P. H., age, 51, male, printer, admitted November 11, 1910. History of sustaining injury by falling. Skiagraph revealed a fracture of the internal malleolus of the tibia and a fracture of the fibula, the fibula being fractured about 1½ inches above the ankle-joint.

On November 15, 1910, an incision was made over the lower end of the fibula and a four-screw Lane plate applied. This plate extended down to a level with the ankle-joint.

To date, May 1911, there has been no trouble with the plate.

CASE 14. E. S., age 30. Six days before seen, this young man was thrown from a wagon and broke both bones of the lower arm about 5 inches below the elbow.

November 4, 1910, a plate with four screws was put on each bone, sewed everything tight and put him in a plaster cast.

December 21, 1910, the cast was removed and everything found in perfect shape.

June 1, 1911, strength same as in other arm, but rotation slightly impaired. Patient said he had not tried to overcome this as directed; little finger felt "dead" and there were occasionally slight pains in the region of the fracture.

November 10, 1912, finds the arm perfect in every respect, excepting a slight impairment of rotation.

CASE 15. L. K., age 39, male, driver, admitted November 14, 1910. History was that milk-wagon turned over on his leg.

November 22, 1910, skiagraph revealed a fracture of the tibia and fibula, the tibia being fractured obliquely and in very poor position. There was a portion of the fibula about 1¼ inches long, broken out, in this way giving three fragments.

After the fragments had been approximated a triangular chip which had been displaced was put back into place and a heavy four-screw Lane plate was applied to the tibia. An incision was then made over the lower end of the fibula on the outer surface, 3½ inches long, and the bone exposed. The bone, which had been fractured in such a way that three fragments presented, was plated with a four-screw Lane plate after the fragments had been adjusted.

June 2, 1911, we saw patient, who works in a dairy. He was pitching a sixty-pound tub of butter on a truck with ease. No pain, faint swelling at 5 P. M., after having worked all day. Alignment was perfet; beautiful result; x-ray confirmatory.

On account of an acute inflammatory reaction in the vicinity of the plate, this was removed on August 9, 1912. I heard from him on November 10, 1912 and was delighted to find that he is in every particular as well as before his leg was broken.

CASE 16. A. K., female, age 9, was admitted November 19, 1910, with history of falling off a porch, eight feet to the ground. Sustained a compound fracture of the right ulna in the lower third of the forearm. The bone was protruding through the wound and it was reduced at once.

October 25, the fracture was exposed bluntly, thus avoiding any injury to the ulnar nerve. The fragments were well exposed, brought into apposition and a small sized, four-screw Lane plate was applied.

The patient was discharged October 30, 1910, the wound having healed by first intention.

On May 23, 1911, the child called to see one of us. The scar was in good condition; result ideal, there being no pain. The union of the ulna was perfect. She was referred to the City Hospital for the last skiagraph which shows perfect alignment.

She writes under date of November 10, 1912 that her arm is perfectly useful but that she occasionally experiences slight discomfort in it.

CASE 17. J. D., age 50, male, carpenter, admitted November 21, 1910. Skiagraph revealed a fracture of the left femur at the junction of the lower and middle thirds. Bone fragments exposed, revealing a spiral fracture at the junction of the lower and middle thirds. The ends of the bone were approximated and a six-screw Lane plate applied.

February 4, 1911, the patient was discharged, having made an uneventful recovery. Result satisfactory. We saw him on June 3, 1911, and on June 11. He reported no pain, and that he was walking and working.

CASE 18. F. G., age 54, male, was admitted November 26, 1910, giving a history of having his arm caught in a saw, and as a result presented a compound fracture of the ulna at junction of the upper with the middle three-fourths of the bone. The common origin of the flexor tendons had been partly severed and just above the wrist there was an injury to the bone on the ulnar side, the ulnar artery having been severed along with the ulner nerve and several tendons of the flexor sublimis digitorum. The hand was very dirty. The patient was at once taken to the operating room, where, under a general ether anesthesia, the wounds of the wrist were explored. The ends of the ulnar nerve were found and approximately with through-and-through sutures antero-posteriorly, and another through-and-through suture laterally to prevent lateral displacement. Several sutures of very fine linen thread then put through the nerve sheath, thereby keeping it in good position. The ulnar artery was ligated. The proxi-

mal ends of the tendons were then sutured to the distal extremities. A four-screw Lane plate was then inserted on the ulna through the original wound. The cut muscles were loosely approximated, the upper wound being closed in such a way as to take careful regard for spontaneous drainage. There was practically no infection around the wrist wound. Some superficial sloughing was present in the upper wound, but the plate remained intact.

He was discharged December 18, to the out-patient department.

On May 26, 1911, he called to see one of us and examination revealed the following; slight contractures of ring, middle and little fingers, anesthesia to pin pricks of the entire little finger, wrist function perfect. The wound had entirely healed.

CASE 19. W. H., age 48, farmer. On October 21, 1910, fracture of left tibia and fibula. No union on account of bone splints being wedged between the fractured ends. As seen at operation December 10, 1910, about one inch of over-riding. There was slight callous at the point of contact. The fibula was solid, hence nothing was done to it. I put on a plate with six screws and got everything in good line without difficulty.

April 10, 1911, patient said that he had been working some, and that he had no pain in leg.

CASE 20. J. P., age 21, male, laborer, entered January 16, 1911. He had sustained a compound fracture of the tibia oblique in nature, with a tilting of the lower fragment.

January 25 the wound was enlarged downward for one inch. Fascia and periosteum pushed aside and fracture exposed. Ends of fragments grasped with bone forceps. Approximation made. Cloths removed from between the ends and a four-screw Lane plate applied to the anterior surface of the tibia close to the anterior border. Interrupted silkworm-gut sutures used for the skin, drain left at site of wound. Dressing and cast applied. After removal of cast, Cabot splint was applied. One screw worked loose and was removed.

Patient was discharged to the out-clinic department, May 20, 1911. Plate removed; end result good.

CASE 21. P. S., age 45, male, teamster, admitted January 20, 1911, giving a history of having been knocked from his wagon by a train. He entered the hospital suffering from a compound fracture of the right leg in the middle third. The skiagraph revealed a spiral fracture with a slight comminution, overlapping of about 1¼ inches.

January 31 a four-screw Lant plate was applied. He was discharged on February 15, having made an uneventful recovery.

April 20, he came in complaining of pain over the tibia. There was redness, some slight edema, some swelling. The union seemed to be softened. A second skiagraph was taken, revealing some dropping backward of the lower fragment, and this had caused the two screws in the upper to pull loose. There was slight rarefaction of the bone. The plate was removed on April 29. Healing by first intention took place.

November, 1912, leg in perfect condition.

CASE 22. A. S., age 44, farmer. November 27, 1910, fracture of right fibula and tibia.

January 13, 1911, tibia was found to be non-united. January 25 operation. I put on a plate with three holes in either end. March 4 the cast was removed; wound well healed.

April 26, patient reported he was getting along well; could walk without support. May 5, patient had been doing some work (general farm work) without experiencing any fatigue. Generally speaking, he was in first-class condition.

November 10, 1912, a card was received from this patient in which he expresses himself as being well in every particular.

CASE 23. C. E., age 26, laborer, accident occurred on January 30, 1911. The leg was caught between the elevator and the wall, snapping the femur. Skiagraph taken the day of admittance shows fracture between lower and middle third of femur.

February 2, a Lane femur plate was screwed on without great difficulty. Plaster cast was applied, including hip and lower leg. Save a slight skin infection, wound healed perfectly. The patient was up on crutches in seven weeks.

June 4, the patient was again working with no perceptible limp.

Reports leg as being in perfect condition on November 10, 1912.

CASE 24. T. B., age 29, carpenter, while working on a chimney fell thirty feet, striking the elbow against a block of wood. The olecranon process was broken completely off, transversely.

Operation, February 1, 1911. The olecranon was readily brought back into position and fixed with a Lane plate. At the end of five weeks patient left hospital with function of elbow practically perfect. The patient could easily comb his hair and use this arm just as well as the uninjured arm. Pronation and supination were normal so far as could be told.

November 10, 1912, find this patient with one arm as good as the other.

CASE 25. B. N., age 25, male, laborer. This patient was admitted February 5, 1911, with a history of having fallen on his right leg. Three attempts at reduction had been made under anesthesia without obtaining a satisfactory one. Skiagraph revealed an oblique fracture of the tibia and fibula, the fibula being broken in three places.

February 21, a spiral fracture of the tibia with overlapping of about one inch was found, and it was only after considerable difficulty, much traction, the removal of granulations, the snipping off of the end of the bone, and the removal of several spiculae that the reduction could be accomplished. A four-screw Lane plate was then applied. Over-riding in the fibula was about the same as in the tibia. There was this difference, however: a third fragment was attached only at the bottom with periosteum, and with some difficulty a four-srew Lane plate was applied so as to include the upper and lower fragments, the third being held in position by a silkworm-gut suture thrown around the bone and the plate.

On May 24 the patient returned for examination. There was no pain but occasional slight swelling around the ankle after walking. The alignment of the bone was very good. For the past two months, the patient had been carrying trunks weighing 200 pounds. He gave a history of having a trunk fall on his leg and stated that even this failed to injure or break it again. According to his statement, six weeks after the injury he was carrying trunks weighing 200 pounds.

Case 26. C. P., age 23. This young man was blasting out stumps when he was struck by one about five inches above the knee. The femur broke almost square off and a portion was left sticking through the skin. On February 16, 1911, after excising the wound a plate with four screws was put in each end. Healed by first intention and the patient was out of the hospital in two weeks with his cast intact.

May 15, made no complaint except of a swelling of the lower leg when it was down too long at a time.

Case 27. S. M., male, age 12. This boy fell from a wagon three days ago and sustained a "V" shaped fracture a little above the middle of the femur. There is about two inches overlapping.

Today, August 8, 1911, I applied a four-screw Lane plate. November 1, 1912, finds him attending school and getting around like other children without any attention being attracted by the injured leg.

Case 28. B. M., male, age 42, fell through an elevator shaft and fractured left femur in the middle third. A six-screw Lane plate was applied on September 5, 1911, four days after the injury. He was taken home in a plaster cast about one week later, this being removed after seven weeks. It revealed a perfectly healed wound. I did not see him again until November 10, 1912, when he called upon me. He said that he had been at work practically ever since his cast was removed and had never experienced any trouble from the injured leg.

Case 29. M. Y., male, age 30, entered the hospital September 10, 1911, and gave a history of an old compound fracture which had been wired five weeks previously. He had an open, suppurating wound from which the bone protruded. We enlarged the wound somewhat, mopped out the pus and applied a six-screw Lane plate after taking out the silver wire, then packed the defect. There was not much reaction. The plate was removed three months later and the union found to be firm.

June 1, 1912. He walked without support and complained of no pain. The result was surprisingly good in view of the local condition.

Case 30. A. F. female, age 60, entered hospital on Nov. 8, 1911, with a history of having fallen down a flight of stairs four days previously. Skiagram showed the olecranon to be broken off transversely at base. Next day it was attached to the shaft by a small four-screw Lane plate. Healing was uninterrupted. A heavy cast was left on about seven weeks and in consequence of carrying the same she experienced a good deal of discomfort around the shoulder.

November 1, 1912, finds the elbow in perfect condition, but still some atrophy and disability around the shoulder.

Case 31. E. P., male, age 36, had sustained a fracture of the left humerus, three years before I saw him. When he entered the hospital on January 8, 1912, he had a perfect flail joint at the site of injury, being able to move the lower fragment in any direction to an angle of about 45 degrees. The next day I squared off the bones and applied a small six-screw Lane plate. Healing took place in the usual manner and on October 1, 1912, he was able to do his customary work as a teamster; the humerus being perfectly rigid although for the sake of safety a leather cuff is still worn.

Case 32. J. McK., male, age 33, fell from a wagon and the wheel passed over the upper part of left arm on January 22, 1912. One month later I saw him with a suppurating compound fracture of the left humerus, about the junction of the upper with the middle third.

On February 23 I enlarged the opening and applied a four-screw Lane plate and packed the wound. On March 25 he left the hospital and on May 7 had a firm union. A few weeks later the plate was removed. On November 10, 1912, he reports the arm in perfect condition.

Case 33. M. D., female, age 65, fell on icy pavement several days ago and broke both bones of the lower arm.

On March 2, 1912, I enlarged the wound in the soft parts over the ulna, mopped out the pus, trimmed off the bones and applied a small four-screw Lane plate. The wound was packed and a plaster cast applied.

June 1, the ulna was solid and the wound still draining. The fractured radius to which nothing had been done was still ununited.

Case 34. P. S., male, age 8, was run over by a wagon eight days before I saw him.

March 9, 1912, the humerus was found fractured diagonally across about four inches below the shoulder joint. The tendon of the biceps muscle was withdrawn from between the ends of bone and a four-screw Lane plate applied

April 18 the cast was removed and union found to be perfect.

November 10, 1912, he writes me that one arm is just as good as the other.

Case 35. S. P., male, age 11, was trying to climb into a moving wagon when he thrust his leg through the spokes of a hind wheel and tore the epiphysis off the lower end of the femur. This occurred April 7, 1912. The next day a small three-screw plate was used and the epiphysis accurately restored to its proper position. The wound was then packed and continued to drain profusely until October 15 when x-ray showed the alignment perfect, the plate holding tight but a large portion of the lower end of the femur above the break necrotic. Around this area there was so much cortical thickness it was possible to remove the plate and the sequestrum without refracturing the bone.

On November 15 the boy is still in a cast but gets around on crutches. We have no doubt but that he will ultimately get a perfect leg.

Case 36. C. M., male, age 42, fell from a building and fractured his femur. The fracture line is oblique with 1½ inch shortening, the fragments being crossed at an angle of about 25 degrees. The injury happened five days ago.

Today, May, 11, 1912, with considerable difficulty the fragments were lined up and a six-screw Lane plate applied.

November 12 he writes me that the leg is in perfect condition.

Case 37. L. L., male, age 11, was run over by an automobile on March 17, 1912. The same day I found a granulating open wound with a fractured tibia showing. This was enlarged slightly and a four-screw Lane plate applied.

On May 23 the boy walked without support. He

had a small suppurating sinus but a solid union and perfect alignment as shown by the x-ray. A few weeks later the plate was removed and the sinus promptly healed.

Under date of November 10, this year, he writes me that his leg is in perfect condition.

CASE 38. C. H., male, age 24, bridgeworker, fell thirty-five feet on September 26, 1912, and sustained a compound fracture of both bones of both lower legs. The right tibia was broken oliquely, to it Codavilla's extension was applied; between thirty and thirty-five pounds tension being used. The fracture of the left tibia was apparently square across, the bone ends were in plain view and on September 28, a small four-screw Lane plate was applied.

November 15, the patient is in a wheel-chair with a light cast on both lower legs. The wounds are healed, excepting for a small sinus leading down to the bone plate. X-ray shows almost perfect alignment on both sides, both tibiae are apparently solid, there being slight over-riding of the right or unplated side.

The average time elapsed between the operation and the final report, which I am able to offer in these cases, is ten months. I have followed 1 of them twenty-nine months; 3, twenty-four-months; 1, twenty-two months; 1, twenty-one months; 2, fifteen months; 1, fourteen months; 1, twelve months; 2, nine months; 3, eight months; 5, seven months; 6, six months; 1, five months; 2, four months; 3, three months, and 1, two months.

Extended mention must be made of Case 15. It will be noted that he made an ideal recovery after having had both tibia and fibula plated and worked almost two years without trouble of any kind. Then the picture changed; one morning he awoke with the injured ankle and lower leg greatly swollen, red and sensitive. X-ray examination showed practically nothing abnormal; ideal position of the fragments was evident. His plates were immediately removed, with negative bacteriologic findings. He was up and around in about two weeks and has been working without discomfort now for nearly two months. This case shows that we do not yet know just what to promise our patients as to the ultimate outcome of such operations. One is no longer justified in predicting that any plate is going to remain indefinitely in place without giving trouble.

In four cases, 7, 29, 32 and 33, a plate was imbedded in a suppurating wound. It will be admitted that there was no chance for success in the one where practically no cortical substance was at hand for a screw hold, but it speaks well for the future of such cases that I have had three successful results in my only three favorable cases. These patients developed no serious reaction after the operation, which I believe is due, in part, to the fact that the wounds were flooded with tincture of iodin as soon as the conservative dissection was completed and packed with gauze after the plate had been applied.

Several causes have conspired to decrease the relative importance of the knowledge and teaching of fractures as it existed a generation ago, when in the hands of certain men a very creditable per cent. of good results were obtained, if satisfactory function of the part is to be regarded as a measure of success. With the added information which is gained by the use of the x-ray, it seems only reasonable that more should be accomplished at the present time in a conservative way than ever before. Still time-tried diagnostic methods are neglected since its introduction.

The aseptic open method also has simplified the problems of diagnosis and treatment, tending at the same time to make one less painstaking than formerly.

It must be admitted, too, that the enormous recent increase in the extent of our general surgical horizon has led to the fact that few, if any, of our students are taught fractures with the same degree of accuracy as formerly. However, lack of such knowledge is not to be taken as an argument for open treatment.

INDICATIONS FOR OPEN TREATMENT.

(While this paper concerns itself primarily with the use of the Lane plate, still the term "open operation" when used hereafter is not meant to apply to this device alone, since there are localities, as for instance the patella, which are, in my opinion, better treated by other open, local methods, viz. simple reposition, wiring, nails, etc.)

No general statement will ever cover all cases, since special considerations are bound to influence treatment of certain individuals. One thing is sure, that is, in spite of the most satisfactory advances of recent years, hardly any operative procedure is wholly without risk; hence I feel that we must, before subjecting any bone case to operation, show very definitely why we are assuming even the moderate operative risk here involved.

So much for a positive contraindication, now for relative considerations. It has been urged that anatomical perfection is of vast importance, but this must be modified, it seems to me, to apply only under certain considerations. As a matter of course a big callous or deformity on an exposed bone, especially in a female, is a matter of importance and to be avoided by all means.

Extreme shortening of a long bone is not to be treated lightly, but can be met otherwise than by plate, etc. Indeed it may not be out of place to recall, in passing, that anatomical perfection is frequently at variance with complete functional utility and that the two terms must not be regarded as synonymous.

Many authors, the writer of this article among them, have in their enthusiasm for open treatment, urged as a reason for its use the likelihood

of soft tissues getting between the ends of bones and thus preventing union. I am confident that this is one of the many traditions which have been handed down from nobody knows whom and repeated in a somewhat thoughtless way. In more than one hundred open operations for fracture I have been impressed that the soft tissues very frequently are found between the fragments. Now if this occurs in the patients who are operated upon, does it not also occur with corresponding frequency in those who are the subjects of conservative treatment? But we know that a far greater majority of bones which are treated by closed methods unite solidly. If these two premises are admitted, the only logical conclusion is that the bugaboo of soft part interposition has been greatly exaggerated.

The only indication for operation which stands out prominently above all the others is, to my thinking, *a functional defect*, either proven in an old case or predicted with a reasonable degree of assurance in a recent one.

It may, with propriety, be asked how we are going to predict a functional need in a fresh case. Of course this can only be done within certain limits, which no doubt will vary greatly in individual cases. I can, perhaps, illustrate the point by reference to a single instance.

A powerful young laboring man entered the hospital with a compound transverse fracture of the patella. The skin had been sewn up in the dispensary and there was less than 2 cm. displacement of the fragments.

It has been somewhat difficult to formulate a rule for operating upon these cases, and in this instance having functional disability as our guide, we allowed him to rest in a splint for ten days, at the end of which time he was wholly unable to use his quadriceps extensor sufficiently well to lift the foot off the bed. This was not due to any inhibition resulting from pain, hence we concluded that there was sufficient damage to the ligamentous structures in front of the knee-joint to interfere seriously with the pull of the quadriceps on the tibia. Operation was immediately undertaken and extensive lateral tears in the capsular ligaments discovered on both sides of the patella.

There is not much difficulty in predicting functional impairment when a fracture near a joint results in a deep seated and dislocated fragment too short to handle. The obvious result of a large callous in such a situation is limitation of movement.

As a matter of course the patient's occupation influences our choice of a therapeutic procedure. A plasterer or fresco painter must reach above his head and in consequence needs a better clavicle than do the rest of us. A professional pianist must have arms which are above reproach as far as function is concerned. The same can be said of the legs of professional dancers, etc.

In addition to the above general statements on function, it may be said that an open operation is thought desirable in our hospital

(1) When a leg case must be gotten out of bed early.

(2) In old cases of non-union or *extreme* mal-union.

(3) It is, of course, desirable in all fresh widely open fractures if shock be past.

(4) In chronically infected cases in which the bones lie bare. All compound wounds, whether suppurating or not, are to be packed and allowed to granulate. Generally speaking, the patient must always be a good surgical risk.

Every surgeon who has had personal experience in the use of Lane's bone plates appreciates that, in the treatment of recent fractures, no open operation is justified unless ideal approximation is to be obtained. This means that all the fragments must dove-tail perfectly.

Great difficulty is often experienced in perfectly lining up two main portions of a broken long bone. A few millimeters tend almost invariably to prevent the axes of both from coinciding. To meet this need two instruments have been described by me, one in *Annals of Surgery*, January, 1912, entitled "Clamp for Lining Up Fractured Long Bones."

There are a number of advantages which especially characterize it:

(1) It is open above, so that the fracture line may be seen at all times.

(2) It holds the plate firmly on the bone, and supports the whole while the screws are being driven.

(3) It is easy to place in position, since each half is applied or removed separately.

(4) It consists of four inclined planes, so disposed that fragments of any shape or size are driven to a common axial centre.

It seemed important at the same time to devise a traction instrument, as traction secured through manual efforts proved both insufficient and uncertain. A picture of this is printed in the *Journal of the American Medical Association*, October 21, 1911. It consists of a long screw and triangular frame almost two feet in length, which is bolted to the foot of the operating table in a horizontal position, if the fracture be one involving a bone of the leg. By turning the screw any amount of tractive force can be secured through a cord attached to the patient's foot. For a fracture near the ankle, two towels are looped around the foot and the screw attached to each. But if the fracture be high enough a very convenient way of getting traction is to fasten a screw eye to the heel of an ordinary high shoe, and attach the cord to this.

Lane urges and practices, as is well known, an asepsis which must be more rigid than any which has been used heretofore in general surgical work. He says, no one has a right to attempt operations for fracture who is not prepared to prevent any exposure of the skin; to keep his hands from ever coming in contact with

the tissues or with those portions of the instruments which do come in contact with the tissues; nor are needles, sutures or ligatures to be handled with other than sterile instruments at any time. Rubber gloves cannot be trusted to come in contact with tissues, blades of instruments, needles or threads, because of the possible contact with other things or of a minute hole in the glove.

I may add that all but my first case were manipulated so. No one who has taken the trouble to master this technic seems to think there is anything very difficult about it.

In the paper which I read before the meeting of the American Medical Association in Los Angeles, last year, I gave my conclusions on a series of experiments intended to determine the force needed to dislodge thirty-four screws, half of them infected, from the long pipe bones of dogs, at intervals varying from one hour to seventy-one days. My conclusions were, that it requires but 41 7-9 pounds to dislodge an infected No. 3 screw from a dog bone, with a cortex of 2 mm. On the other hand, a pull of more than 95 pounds was required to draw the average clean screw of No. 3 gauge from bones of about 2 mm. cortex. The corresponding human bones have a much thicker cortex; moreover, No. 5 and No. 7 screws are used, which are much larger in every dimension, to say nothing of the fact that as many as ten of them are embedded at one time. It does not require much mental effort to picture the great amount of force needed to tear such a plate out of an aseptic wound when freshly applied, provided only it has been correctly applied, that is, by means of a drill the size of the screw-barrel with the screw threaded to its head. In the experiments here described the screws were not observed under actual working conditions, since there was no pull or other external force acting on them during the healing process, as is the case when a Lane plate is used in the human being. I believe, too, that most surgeons consider the usefulness of the plate about over when a snug splint has been applied externally.

The primary object of a paper read at the 1911 meeting of the American Medical Association was to determine what happens when plates are screwed to fractured dog bones and the animals are allowed full freedom, without splint, or bandage.

Eight of my fifteen dogs in which a bone plate was used thus died as a result of the operation. One was an ether death, but the other seven were lost as a result of wound infection, if we can include one which mysteriously disappeared and on which I have no definite data. This extremely high mortality has, of course, very little bearing on the situation as it confronts the human being, since it is impossible to keep splints and dressings on dogs' legs, to say nothing of the fact that they run about and bite out the skin stitches.

In no instance was a screw or plate found, at remote autopsy, to be directly in contact with the bone, there being always much intervening granulation tissue or fibrous connective tissue around the screws and plate. Hence, one cannot properly say that a screw does or does not hold in a bony socket. In the course of time bone in contact with metal disappears. In spite of this, as shown by my experiments, screws do hold remarkably well, even in infected wounds in many instances.

The results of my clinical and laboratory work incline me to the belief that extreme discrimination will be the rule in choosing our future subjects for open fracture operations.

I must say that I am doing a smaller per cent. of this work now than at any time since a visit to Mr. Lane's clinic stirred my enthusiasm some two and one-half years ago. However, certain carefully selected simple fractures must be operated upon and it is my conviction that a great majority of such can be more accurately approximated by the Lane plate than by any other device now at our command.

UNILATERAL HEMATURIA IN CHRONIC NEPHRITIS.*

BY P. B. TRUESDALE, M.D., FALL RIVER, MASS.

CASE 1. P. A., female, aged 70 years, married. With the exception of a small healed area of tuberculosis in the right lung, there was nothing of importance in the family or previous history of the patient.

In Oct., 1909, she noticed blood in the urine. From that date until the time that she entered the Highland Hospital in May, 1910, hematuria was almost constantly present. Other symptoms were those which usually accompany a secondary anemia. In January, 1910, ureteral catheterization disclosed a right-sided hematuria; examination of the urine was negative except for the presence of blood.

Among other things employed in the medical treatment were fresh human blood serum and rabbit serum. After injecting the rabbit serum there followed a period of three days when the urine remained clear, a respite which may or may not have been influenced by the serum. With this possible exception no form of medical treatment employed had any apparent worthy effect on the hematuria.

In May, 1910, seven months after the onset, the patient's hemoglobin was reduced to 50 per cent., and in her general condition there was evidence of exhaustion from a prolonged and severe secondary anemia. The urine from the right kidney now resembled blood slightly diluted with water. The specimen from the left kidney contained an occasional hyaline and fine granular cast, otherwise it was normal. Examinations of the sediments for organisms including the tubercle bacilli proved negative. A fruitless search was also made for tumor cells.

Nephrectomy was done May 27, 1910. Dr. Annie C. Macrae examined the kidney and reported as follows: Specimen, a right kidney 10 cm. by 4 cm. and weighed 113 gms. The capsule stripped off easily leaving a smooth but blood-shot surface.

* See plate opposite page 164.

On section the surface presented a dark reddish color especially marked at one pole; at this place the blood vessels of the pyramids were defined as bright red lines. The cortex was ¾ cm. thick and was diffusely reddened. The branches of the renal artery were sclerosed. Microscopical examination showed a marked cloudy swelling of the parenchyma. The glomeruli appeared larger than normal and showed an increase of the connective tissue of the capillary tufts and in some of them patches of hyaline change. There were also foci of increased connective tissue between the tubules, more marked around the glomeruli. Enlarged blood vessels were numerous and in the pyramids were multiple small hemorrhages. The arteries showed thickening of the intima, also thickening and degeneration of the media. Sections stained with Sudan III showed fatty degenerations of many tubules. Sections stained with iodine for fatty degeneration were negative. The pathological process was restricted to one pole. Sections from several other parts of the kidney showed almost normal renal parenchyma.

Diagnosis: chronic interstitial nephritis. Fatty degeneration. Arteriosclerosis.

There was no recurrence of the hematuria and the patient's condition improved steadily. She remained well for about a year. On July 24, 1911, she died after a short illness from uremic symptoms.

The onset of the hematuria in this case was insidious and without assignable cause. The hemorrhage was unilateral, persisted for seven months, and was not controlled by medical treatment. The urine from the affected kidney examined twice failed to show any evidence of chronic nephritis. While an occasional hyaline and granular cast were found in the urine from the left kidney, none was found after a careful examination of the sediment from the urine from the right kidney. At operation there was nothing in the gross appearance of the kidney to explain the hemorrhage. Nephrectomy was done as the operation involving the least risk and affording the best chance of immediate relief.

CASE 2. W. L., aged 52 years, male, married. Mother died from phthisis. Occupation a moulder, and for 30 years has handled plumbago, which is a form of lead dust. For the past few years he had complained of indigestion in a mild form, consisting of epigastric distress with eructation of gas coming on soon after meals. These symptoms improved after he left the foundry. He had never experienced attacks of colic, vomiting and headache nor had he ever had wrist-drop. Except for his present illness he claims to have always been well. He is 5 ft. 11 in. in height and weighs 140 pounds. His weight before the onset of present illness was 164 pounds. For about a year he has had nocturia, getting up two to four times. Hematuria came on without any apparent cause in April, 1911. For two weeks there was an abundant loss of blood. He gave up work complaining of a dragging discomfort in the lumbar region and a marked loss of strength. Thereafter the amount of blood in the urine varied, but it always had a smoky appearance. Medical treatment failed to control the hematuria.

On August 22, 1911, he entered the Highland Hospital. His appearance was anemic and decrepit. The temporal arteries were plainly visible and a trifle indurated. Heart and lungs were negative. No lead line. The liver was normal in size and the kidneys were not palpably enlarged. Urine, 24-hour amount, 60 oz. Sp. gr. 1012. Albumin, a trace. No sugar. Sediment contained hyaline and granular casts. Ureters were catheterized. The specimen from the right kidney contained blood in large quantity. Urine from the left kidney contained a large trace of albumin, no blood, great number of casts, hyaline, granular and epithelial.

X-ray examination showed no evidence of stone. No tubercule bacilli or tumor cells were found.

On account of the condition of the left kidney it seemed best to temporize with a view to doing nephrotomy if the hematuria persisted. For three days after ureteral catheterization there was an abundant hematuria after which it gradually subsided, and had entirely disappeared at the end of a week. Accordingly, the patient was allowed to leave the hospital. On Nov. 29, 1912, he returned giving the following story: In Dec., 1911, three months after leaving the hospital, his weight returned to 164 pounds, and his general health had greatly improved. There was a respite of six months, the hematuria returning in March and persisting for seven months. He observed that the amount of blood in the urine was greatest during the hottest days, and especially upon days when the humidity was high. The 24-hour amount of urine is now approximately 90 oz. Sp. gr. 1015. Albumin, slightest possible trace. The sediment contains an occasional hyaline and granular cast. No blood. The patient is engaged at present in an out-of-door occupation as a gardener; has gained rapidly since the hematuria stopped in October and weighs 155 pounds.

Until the onset of the hematuria in April, 1911, this patient had not consulted a physician, so that no knowledge of the urine was available prior to that time. The hematuria was the first symptom which led to the discovery of his chronic nephritis. It persisted for many months through the hot season and stopped coincidentally with ureteral catheterization, recurring in the spring of 1912. This second attack of hematuria incapacitated the patient by its continuous presence until the following October when it stopped spontaneously. During the periods of hematuria from the right kidney, the pathological process in the left kidney was aggravated, evidenced by the presence of an increase in the amount of albumin and the number of casts. Upon cessation of the hematuria the amount of albumin and number of casts diminished.

The subsequent course of this case will be followed with interest.

Not until 1897 was the term "essential hematuria" explained by the lesions found in chronic interstitial nephritis. Keersmaker was the first to call attention to this symptom in relation to cause and effect. He did nephrectomy for abundant unilateral hematuria. The kidney examined microscopically showed lesions of chronic interstitial nephritis, whereupon Keersmaker insisted that many of the cases of so called essential hematuria, if carefully examined, would probably show the same lesion.

Albarran followed a year later with an essay

supporting the findings of Keersmaker and contending further that in nearly all cases of essential hematuria some lesion could be found to account for the hematuria. A hemorrhagic kidney removed by Nicolich was examined and found negative. Albarran sought the specimen and with Motz examined many sections from different parts of the organ, finding typical lesions of chronic nephritis which had been overlooked in a more superficial examination. He discredits the terms "essential" or "idiopathic" renal hematuria, and emphasizes the great frequency and importance of recognizing chronic nephritis as a cause of hemorrhage in the cases previously reported as essential hematuria.

Klemperer, Schede, Senator and others adhered firmly to the theory of essential hematuria, hemaphilia and angeio neurotic renal hematuria. They based their conclusions on their personal observations and the cases already reported. Fowler recently recorded a case similar to many cited by the above authors. The patient was a colored laborer aged 26. For one month he had a persistent and abundant unilateral hematuria. Nephrectomy was done. A large number of sections was made from different parts of the kidney without finding any adequate cause for the hematuria. Fowler places this case in the class with many others in literature, "hematuria with cause unknown."

F. Legueu and Malherbe presented a report of their investigations before the Congress on Urology in 1899. They stated that they had found an anatomic interpretation of all the cases thus far reported, and for any conclusions to possess authoritative value they should be based on a minute examination of the entire kidney.

Graff and Gaudiani arrived at the same conclusions: that a localized nephritis always existed to account for the hemorrhage. Kotzenberg recorded four cases of hematuria showing incontestable lesions of chronic nephritis. He, too, states that histological examination does not yield these results unless the greatest care is exercised by the examiner, who should make sections from divers parts of the kidney.

Fowler, of Washington, made interesting and valuable comments on the literature up to 1905, reporting a case under his own observation, from the results of which he summarized as follows:

(1) The onset of the hematuria was spontaneous and without apparent cause. It was not associated with any other urinary disturbance.

(2) The hemorrhage was profuse and continuous. It had persisted for four years in spite of repeated attempts by various means to control it.

(3) The hematuria was unilateral.

(4) Repeated examination of the urine failed to show any evidence of nephritis. The presence of albumin in the urine was accounted for by the blood present. No casts were ever found. There was never an interval when the urine was free from blood.

(5) On exploring the kidney it appeared normal except for the markedly granular appearance of the surface. Nothing was found microscopically to explain the hemorrhage. The operation was followed by an immediate cessation of the hematuria. Convalescence was rapid. The patient's general condition improved.

(6) Histological examination of the kidney showed a chronic interstitial nephritis of a moderately severe grade, in which the hemorrhagic tendency was well marked.

In a recent personal communication from Dr. Fowler I have learned that the present condition of the patient reported above is excellent. He is at work daily and has had no recurrence of the hematuria. Examination of the urine shows an occasional cast and slight albuminuria, elements which were present in the urine from the remaining kidney at the time of operation. Fowler stated in his article that numerous observers have drawn attention to the fact that hematuria may be the first and only sign of renal sclerosis occurring sometime years before other symptoms make their appearance, that the diagnosis of hematuria due to chronic interstitial nephritis prior to that time had been made only in a comparatively small number of cases for the obvious reason that only during the previous few years was chronic nephritis recognized as a cause of abundant hematuria. Until then the diagnosis had been made and confirmed at operation by those only who had the largest experience with this class of cases.

Hamonic reported five cases in which hematuria occurred as the first symptom years before the true nature of the kidney lesion was manifest. The first case was that of a man aged 42 years who had several attacks of hematuria during a period of two months. Except for the blood the urine was normal. For five years this patient was under observation being treated at intervals for minor complaints. During this time repeated examinations of the urine showed nothing abnormal. Suddenly there was an explosion of acute parenchymatous nephritis accompanied by other attacks of hematuria.

Albarran divided the nephritic hematurias into three clinical groups, as follows:

(1) The hematuria appears along with other unmistakable symptoms of nephritis.

(2) The hematuria precedes the evolution of nephritis, possibly for years. After a longer or shorter period other signs of nephritis appear.

(3) Hematuria is the only symptom. It is spontaneous, without apparent cause and is not modified by exercise or repose. The patient goes about her work as if nothing were wrong for days, months or years.

Barringer recently made a study of 73 cases of the hematurias of nephritis. In his classification he considered that a large proportion

were of mild toxic nephritis, another small proportion infectious nephritis, also another small percentage of typical toxic nephritis. Finally, an indefinite number of cases of pelvic conditions, variously named varicose veins of the papilla, pyelitis cystica, metaplasia of the renal pelvis, etc., giving rise to unilateral hematuria. In a large proportion of cases these pathological conditions of the kidney pelvis or papilla he considered to have been caused or accompanied by a nephritis toxic or infectious.

There were 11 cases in this total of 73 which were between the ages of 50 and 70 years, yet no case of the chronic interstitial type was recorded, which is evidence that the condition is not only rare, but occasionally must escape the observation of both surgeon and pathologist.

Occurring as it does in the degenerative period of life the hematuria of chronic interstitial nephritis is not easily differentiated from that due to a beginning neoplasm, especially when the examination reveals the kidney normal to palpation and a urine negative except for the presence of blood.

The first step in the diagnosis should be to obtain ureteral specimens in order to determine the affected kidney as well as the efficiency of the other kidney. Careful examination should be made for tubercle bacilli and tumor cells. A guinea-pig test should also be carried out if no great risk is involved in waiting.

Should the patient be under observation for a period of one, two or more months without a perceptible enlargement of the affected kidney, hypernephroma, if not all forms of new growths, may be reasonably ruled out. An x-ray examination should be made for calculus.

Having eliminated neoplasm, tuberculosis and calculus there remain the nephritides of infectious origin, which can be eliminated by the absence of the products of infection, except such cases of chronic nephritis, as in Chute's classification, which were of infectious origin but had become non-infectious at the time of hemorrhage.

Exceptionally one finds cases of varices of the papilla similar to that reported by Whitney. Pilcher has reported cases of this type. There are several more in the literature, and the condition is generally admitted to be difficult, if not impossible to recognize.

The hematuria of chronic interstitial nephritis comes on insidiously, is spontaneous, unilateral, usually continuous, but may be intermittent. It may persist for weeks, months, or years. For a period of many months the general health of Case 1 was not greatly impaired. The secondary anemia was slowly progressive, yet the patient went about as usual up to the time she entered the hospital.

Exploratory operation is the final step to clear up the diagnosis. If inspection of the kidney does not show any gross lesion, nephrotomy may or may not expose the hemorrhagic area. The chance of missing the affected tissue may be realized when one reads the report of a case by Albarran. At operation he found the kidney enlarged and congested. He incised it widely into the pelvis. No stone, tuberculosis, or neoplasm was found, and the kidney tissue appeared normal. On more careful examination, however, a small grayish nodule the size of a millet seed was seen at the base of one of the pyramids. This was removed, and on histological examination showed chronic interstitial nephritis. Albarran calls attention to the fact that had the kidney been opened up less widely, or had the incision passed a few millimeters to one side, this small focus of disease would have been missed entirely. It is fair to assume that a surgeon of less experience and ability would not achieve success in similar cases.

While cessation of the hemorrhage has fol'owed nephrotomy, manipulation of the affected kidney or even ureteral catherization, recurrence of the hematuria frequently follows any operative procedure which does not excise the hemorrhagic tissue of the kidney. Nephrectomy affords immediate relief, and, in the experience of most surgeons, is accompanied by less risk. In Barringer's series of 73 cases the direct mortality from nephrectomy was less than from nephrotomy. Nephrectomy and nephrotomy appear to have an equal number of advocates. The choice of operation must necessarily vary, not only according to the findings in the laboratory and at the operating table, but also according to the experience and judgment of the operator.

The danger from suppression of urine after nephrectomy should be carefully considered. This is more likely to follow the operation when the pathological lesion is small and a large amount of normal renal parenchyma has been removed. The risk involved in suddenly increasing the work of one kidney is generally well recognized. While this can be minimized by splitting the capsule of the remaining kidney, many operators appreciating the danger of anuria, prefer to do nephrotomy. Unless the hematuria is abundant and the constitutional symptoms marked, sufficient time may be occupied in medical treatment to furnish opportunity for a careful study of the functional capacity of the other kidney.

In Case 2 the left kidney showed the influence of extra work during the period of hemorrhage from the right kidney by the presence of albumin and a large number of casts. Any further tax upon its capacity would probably have produced serious symptoms.

The investigations thus far seem to indicate that hematuria as an early sign of unilateral chronic nephritis is more common than is generally supposed, and the removal of the kidney under these circumstances affords an opportunity for the study of this disease in the period of its earliest manifestation.

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STUDIES IN SPEECH DISORDER.*

No. 1.

Neglect Lisping: Case and Treatment.

FROM THE VOICE CLINIC, OUT-PATIENT SERVICE, PSYCHOPATHIC HOSPITAL, BOSTON.

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The title of my paper was quite misquoted on the postal announcing this meeting. There it said "Neglected Lisping," when I merely intended to demonstrate a case of neglect lisping. True it is, it might well be called neglected lisping, especially here in Boston, for we all know that speech defects, from apasia down to merely the simple sigmatism, are all persistently neglected in our clinics. When a bad stutterer appears no help is offered; when an extreme lisper—like the one to be presented to you tonight—comes along, it is passed by unassisted; when any individual burdened with a severe speech defect is as much crippled as one with anterior poliomyelitis, appendicitis, or a copiously odoriferous Riggs' disease. And sometimes even more crippled, because a good frank speech defect cuts a person out of three enviable spheres of activity—school, social intercourse, and later in life, out of a job. Few diseases—cutting out bedridden types—cut one's life out of so much. Therefore, all these types of speech defect are well worthy of treatment, for they put the children back into school, give the speechless, isolated hermits companions again, and older cases give the worthy boy an occupation. It has therefore been thought wise to open, in connection with the out-patient service of the new Psychopathic Hospital in Boston a Voice Clinic. As this voice clinic develops, it is the idea of the directory of the Psychopathic Hospital to accord to it the proper space, instruments, and library facilities. As matters stand, enough space is available; the instruments for everyday diagnostic work have been installed and a beginning has already been made at a small library concerning speech disorder. This is not a new venture in the medical world. Berlin University has a voice clinic, with a professor at the head of it furnishing the material for three courses of lectures in the Medical School. In Bonn is another large clinic. In New York an assistant in Psychiatry heads a speech defect out-patient department in the Vanderbilt Clinic.

The subject, then, of this demonstration is neglect lisping. Lisping itself is the inability, through failure in perception or in execution, to enunciate clearly. There are many forms, all requiring separate and appropriate treatment according to the diagnosis, each of course improving in varying degrees as the appropriate treatment is given. There is organic lisping, which may be illustrated by the "th" used in place of "s" when the tongue is tied. Then there is the rarer form of neurotic lisping, whose etiology and forms are too complicated to enter into in the space of this short paper. Then there is neglect lisping in almost innumerable forms, one of which I present to you tonight. This little girl came under my care at the voice clinic some six weeks ago. At that time her enunciation was so markedly indistinct, her teachers could not understand her; no child could talk with her, and only her parents could intelligibly interpret her sayings. She was discharged from school, was alone, without playmates,—an endured but hopeless burden upon her parents. When she first came to the voice clinic she said the familiar poem, "Mary had a little lamb," about as follows:—

"ar a a' il am,
I ee a i a o
Ewy air ar e
Er a a ua u o"

A careful study of this will show that almost every consonant in the whole verse is omitted. In her whole conversation it was the same. No wonder no one understood!

In the course of about three weeks' treatment, she could say the first verse of "Mary had a little lamb" and put every consonant in correctly. The treatment consisted in a dramatically enforced attention upon the expression of the consonants individually; this enforced attention was elicited by compelling the patient to pound her arm down with a quick, forced movement at the utterance of each word of the poem. Through the elements of slowness, timing and interval, the result was secured. The slowness gave time for the coming word concept to get duly crystallized in consciousness before utterance; the timing enabled the utterance of the word emphasized to come simultaneously with enforced mechanical emphasis (which latter enhanced the former); and the interval let past concepts vanish from consciousness, rested

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the centers of expression, and thus furnished a bit of reserve strength or held back momentum for the next utterance of expression to follow.

As I said, after some weeks of this procedure —two or three visits for instruction and daily practice at home—she came back to the voice clinic one day able to say the first verse of "Mary had a little lamb" as clearly as anyone.

Before I summarize this case, someone may be interested to hear the history and physical examination.

Girl, age 8. Home. Chief complaint—indistinct enunciation.

Present Illness.—Consists of a markedly indistinct speech, but when attention is forced upon what she should say then the utterances are more clean cut. Mother says she says "do" for "go" and "tume" for "come"; but she says these correctly when asked to in school before others or when she tries hard at home. Voice is worse after a long crying spell. Otherwise negative. Same rare mild headache.

Past History.—The present voice defect the mother says existed from the first. Voice unchanged after the first two attacks of German measles at age of 5 and 6. But following the third attack of German measles at 7 she had pertussis and coughed from December to June and following this her voice was worse. Could say hardly a word clearly for some six months afterwards. Winter of 1911-12 had tonsillitis and following that her voice was worse again, almost as bad as before. After a severe meningitis at age of 5 voice was somewhat better.

Physical Examination.—Appearance of an adenoid breather. But can breathe with mouth shut. Both adenoids and both tonsils enlarged. September 3, 1912, operated for adenoids.

Eyes.—Pupils react to light and distance. Movements are all normal, but movements are accompanied by a sort of uncontrolled sudden movement occasionally. No nystagmus.

Reflexes.—In arms not obtained; no Jacobsohn. Knee jerks negative. Plantars normal. No internal condylar reflex. According to Binet tests she ranks as 6 years. (Dr. Anderson.) Otherwise examination negative. Vocal—Variable omitting and interchange of consonants.

Diagnosis.—Neglect lisping.

The etiology here may need a word of comment, but cannot be discussed exhaustively in this short paper. Meningitis, feeble-mindedness and adenoids are the factors in the background. Against the meningitis as having any strong causative influence is the fact that her voice improved thereafter. As for the feeble-mindedness, there is in the first place only the faintest touch of it, if any (*i.e.* incurred by other factors); and secondly, it may be true that the inattention that accompanies to such a marked degree cases of feeble-mindedness could be an inattention that kept her from clear enunciation. That, I grant, is plausible. But the next etiological factor seems not only the plausible but probable one. That is the adenoids. I maintain they were the causa causarum—if we need more than one. Adenoids kept the child backward; hence the apparent feeble-mindedness (which shows an atypical inattention at best), and by offering a persistent obstacle to utterance, enforced the habit of neglect lisping. At any rate, enough showed in my physiological examination to prove the cortex held the concepts of the consonants, that ear sensory tracts and receiving nerve cells passed along normally all presented concepts, and enforced expressional methods proved their clear utterance plainly within the range of possibilities, and results of treatment have borne out that original prognosis.

Permit me at this point to thank Dr. E. E. Southard, director of the Psychopathic Hospital, for his kind permission to demonstrate this case from the voice clinic of its out-patient department. It is, I believe, the first case demonstrated from that hospital.

Summary of Case.—Girl of 8, after a severe meningitis and diagnosis of feeble-mindedness, is operated upon for adenoids and tonsils, and given exercises to improve her speech defect—known as neglect lisping—by a method of enforced mechanical attention and in a few weeks can say a poem distinctly. Treated at the voice clinic of the Psychopathic Hospital, Boston.

CLINICAL STUDIES ON FEEDING IN INFANTILE MALNUTRITION.*

BY CHARLES HUNTER DUNN, M.D., BOSTON,

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THE occurrence in artificially fed infants of more or less extreme degrees of malnutrition has been the chief stimulus to the continued study of the problem of infant feeding. The difficulties attending the treatment of the so-called chronic feeding cases are well known to every one in the practice of pediatrics, and have remained unsolved in spite of all the research which has been devoted to the problem, which research has chiefly resulted in demonstrating the extreme complexity of the etiologic factors involved. Although almost every specific investigation has revealed facts in regard to the infantile digestion and metabolism of practical value, yet one obstacle to advance on the practical side has been the tendency toward too extensive an application of the practical suggestion revealed by each demonstrated scientific fact. This tendency has led pediatrists to regard the successive new suggestions as new methods of feeding of transcendent value, superseding older ones of equally sound, scientific bases. Even with the recognition that each new method suggested by research should be regarded as a new resource or weapon, of value only in certain cases, it is difficult not to be over-impressed by the latest research, and not to lose sight of the

* Read before the New England Pediatric Society, November 2, 1912.

problem as a whole. It is a curious fact that each new feeding resource is always successful in its published statistics.

It was early recognized that a fundamental cause of the difficulties of the feeding problem was the unsuitability of the various food elements to the varying, but always undeveloped, powers and requirements of different babies, and the earliest efforts at milk modification were directed toward varying the relative percentages of the food elements of fat, lactose and proteid in milk mixtures. Attention was next directed to the relatively high percentage of the insoluble casein in cows' milk, and the chief difficulties of the feeding problem were for a time attributed to this cause. The influence of the starch in cereal diluents, and of various alkalies, upon casein digestion was investigated, adding new resources of undoubted value in certain cases. The alteration of the relative percentages of soluble proteid and casein by the use of whey, the next advance, gave us the resource known as the split proteid. Attention was next turned to the injuries apparently caused by fat, and the high caloric value of this offending element led to the extensive study of caloric requirements. Next the sugar, at first supposedly innocuous, fell under suspicion, and the demonstration of sugar injuries furnished the resource of varying the carbohydrate by the substitution of other sugars such as maltose. Studies of the possible rôle of bacteria in intestinal disorders gave us the resource of milk ripened with the lactic acid bacillus as an anti-bacterial treatment. The latest studies assign the chief injurious rôles to the fat and lactose, and the effort to get rid of the lactose completely has given us the latest resource, the use of precipitated casein as practiced by Finkelstein.

The present status of the problem presents itself in the form of a mass of conflicting evidence. The theories of Finkelstein conflict absolutely, not only with the earlier evidence of the difficulties of digesting casein and the harmlessness of lactose, but also with the later evidence of the etiologic rôle of bacteria. There is no doubt that each of these resources is based on an actual truth, and that each truth is one aspect of the problem; that each resource has its indications and contraindications in individual cases. The difficulty lies in making a choice among them. In the face of the conflicting evidence it is difficult for any one who cannot laboriously follow all the published pediatric literature on this subject, to judge of the relative value of the weapons at his disposal, or of their relative indications.

One trouble lies in the fact that our knowledge of causes, while still very imperfect, has nevertheless run ahead of our means of clinical diagnois. If we know that some cases are caused by irritation from undigested casein, and should be treated by splitting the proteid, by starch, or by alkalies, how can we recognize such cases? If we recognize the fact that fat and lactose can cause injuries to metabolism, and that such cases should be treated by reducing the fat, substituting maltose for the lactose, and increasing the casein, what are the clinical indications? If we recognize that other cases are caused by bacteria, fermenting the carbohydrate or putrifying the proteid in the intestinal canal, and that such cases should be treated by giving lactic acid bacilli, or varying the proteid or carbohydrate in the food, are our means of diagnosis adequate? A few bacterial infections, such as the dysenteric and gas bacillus, can be recognized by more or less laborious laboratory methods; but other cases remain in which bacteria obviously play the etiologic rôle.

The purpose of the present paper is to present evidence, in the first place as to the relative value of certain feeding resources, and in the second place as to the clinical indications. This evidence is based on the clinical study of a series of cases of severe malnutrition treated at the Infants' Hospital during my services in October for four years. Nothing new of scientific value is presented, but rather a review of the practical application of what those engaged in research have offered. The cases are all of severe malnutrition. The October service presents many cases of this description, for when the Hospital opens in October, many of the worst cases which have been treated in the Out Patient Department during the summer, and others left over from the closing of the Floating Hospital, are admitted to the wards. We call them the "end of the summer" cases.

The method of study is, after dividing the cases into the categories of successes or failures, and into certain well defined clinical types, to study the foods used and the results. The cases regarded as successful are those which gained weight consistently or which finally began to gain with relief of symptoms. The failures are those which did not gain. All the cases are clinically of a chronic type. I have divided them into four types. First, a type in which vomiting was the only or chief symptom, called the gastric. Second, a type in which blood and mucus in the stools was the chief symptom, called the infectious. Third, a type in which the undigested movements was the chief symptom, the stools being normal except for the presence of curds or undigested masses, called the indigestion type. Fourth, a type in which the occurrence of loose, green stools was the chief symptom, called for convenience the "fermental." It must be remembered that all these terms are adopted merely for convenience to describe clinical types, and that they have no reference whatever to etiology. In particular, the term fermental has no reference to the question of fermentation of carbohydrate or putrefaction of proteid, nor to the question of bacterial fermentation or injury to metabolism. It does not even mean that there is necessarily any fermentation at all, but is used merely to describe a clinical type.

A word must be said as to the feeding methods. The "eiweiss milch," described by Finkelstein, was not used, for several reasons. In the first place, I believe that the essentials of the Finkelstein treatment consist in a high casein with diminished fat and lactose, and in the use of precipitated casein. It seems to me that the eiweiss milch is unnecessarily deficient in carbohydrate, and if maltose can be substituted for lactose to advantage, this should be done. The chief objection to its use is that it cannot give evidence in favor of or against the theories of Finkelstein, because while the theory disregards the rôle of bacteria, the buttermilk used in the preparation of eiweiss milch is a proven weapon against bacteria, and hence good results from eiweiss milch, instead of supporting the theory, may be attributed to the antibacterial action of the buttermilk. I desired to obtain evidence as to etiology, by using buttermilk and precipitated casein separately. The lactic acid milk used was fat-free milk ripened with lactic acid bacilli, the bacilli being left alive, and had, approximately a formula of 0 fat, less than 4.50 lactose and 3.75 proteid.

The gastric type numbered only 10 cases; 7 were successful; 3 failed to gain; the failures all died. In them low fat and casein in the form of split proteid was the only resource tried. Of the successful cases, 3 showed intolerance of fat, and did best on a total proteid, and 4 showed intolerance of casein and did best on a split proteid. One of these did well only when lime water was added in excess. In two cases precipitated casein was tried with 0 fat, 6 maltose, 2 precipitated casein, without success.

The cases are too few to permit the drawing of any positive conclusions. I believe, however, that in cases in which vomiting is the chief symptom, there is no indication for precipitated casein; that some cases are actually due to casein, and others to fat. Change of sugar was not tried in the failures. I believe that this form is best treated either by cutting out the fat, or by the split proteid, or by combining these two resources, and that a large amount of casein is only required when it is essential to increase caloric value in cases of pure fat intolerance. Lime water in excess should be tried in casein intolerance.

Of the second type, the infectious, there was only one among the chronic cases. It proved to be a gas bacillus infection, and responded to the specific treatment with lactic acid bacilli.

There were only 9 cases of the "indigestion" type among the babies having severe malnutrition, of which 7 were successful and 2 were not relieved. Of the 7 successful cases, 2 showed intolerance of fat, but gained on fat-free food with either split or total proteid. Excess of fat was found in the stools. Three cases were just the opposite, failed on total proteid, were symptomatically relieved on split proteid, but only gained well when fat was increased; casein curds were found in the stools. The remaining two successful cases were exceptions. One of them failed to gain on split proteid, but would only gain on a moderate fat and high casein. Excessive fat was found in the stools. The other case was clinically of the indigestion type, and was started on whey. The baby lost weight, and the movements became green and foul. It improved immediately on lactic acid milk, and gained later on 2% fat, 6% lactose, 2% proteid. It cannot be determined what was the original trouble in this case. The whey may have caused increased development of harmful bacteria, the intestine later being disinfected by the lactic acid milk, or it may have been a case of lactose intolerance, aggravated by whey, and relieved by the low lactose in the buttermilk.

Of the two failures, in only one split proteid was tried, and a very low fat was not tried. It was probably a case of fat intolerance, although the stools were not examined. The other was absolutely resistant. Split proteid, low fat, maltose, precipitated casein, and lactic acid milk were all tried without success. It was possibly severe fat and casein intolerance, as the movements were always undigested, never green or foul. They were not examined micro-chemically.

The conclusions which I draw from these cases must not be regarded as in any way positively warranted, but only as my personal impression, to be used as a working basis. I believe the majority of cases of this clinically indigestion type of malnutrition are due to a simple intolerance of fat or casein, and that the undigested fat or casein act simply as irritants, and produce malnutrition simply through deficiency of absorbed nourishment. I can see no evidence, in this type of case, of any more far reaching food injuries exerting a toxic influence on metabolism, except in the case which failed to gain on split proteid, but gained on total proteid with fat. This case behaved like those of the next to be described, and shows that the clinical diagnosis of this type still rests on an insecure basis. The cause in this indigestion type is equally likely to be fat or casein; if the former, a low fat and high proteid is the proper treatment; if the latter, a split proteid. There are probably cases of severe intolerance of both fat and casein, which can only be successfully treated by breast milk. The examination of the stools for fat or casein is a means of diagnosis of the greatest possible value in this type of case, enabling the physician to direct the treatment properly from the start. This type of chronic intestinal indigestion is much more common in actual practice than the present series would indicate, the relatively small number of cases in this series being due to the fact that it does not so frequently lead to a high degree of malnutrition as the type next to be described.

The cases of the fermental type, with green, loose, often foul movements, often with vomiting as an additional symptom, were the most numerous in the series. They numbered 40 cases, of which 12 were failures and 28 were success-

ful. It is interesting to note that the number of failures was greatest in the first year, 1909, when the failures numbered 7 out of 10 cases. In 1910 they numbered 1 out of 7 cases, in 1911 4 out of 11 cases, and in 1912 there was no failure among 13 cases. While the diminution in the number of failures may easily be due to variation of the severity of the cases in the different years, yet the cases this year seemed on admission to be of about the average severity, and I cannot help thinking that the small number of failures this year was due partly to a progressive clarifying of our ideas on this subject, derived both from the experiences of the investigation, and from the latest literature. For example, in only one of the 12 cases of failure were both measures tried which were adopted as the routine in 1912, namely, with no fat, maltose, and high proteid. In this one case the patient appeared to improve with lactic acid milk, but died within three days. Two other cases died too soon after admission to permit the trying of any measure other than lactic acid milk. In one case there was improvement with 0 fat, maltose and precipitated casein, but the baby died soon after an increase was made in the fat. In the remaining cases split proteid was used, with very bad results. In some of them lactic acid milk failed, but none of them were thoroughly tried out.

The successful cases may, with a few exceptions be divided into two classes, as they reacted favorably to one of two forms of treatment. The first class includes those cases which improved under a food consisting of a low fat and high casein; they numbered 13. The second class includes those cases which improved under lactic acid milk; they numbered 13. The third class includes exceptions, and number 2. Of the exceptions, both did well on split proteid from the start, one on an ordinary mixture, and one with absent fat, becoming worse when fat was increased. These are the only cases of this type which did well on split proteid. Split proteid was tried in 22 other cases without success. Of the cases which did well on lactic acid milk, in 5 the treatment with 0 fat, maltose and high casein was tried first without success. In 8 cases, all occurring in previous years, this measure was not tried. Of the cases which did well on low fat and high casein, in 3 the treatment with lactic acid milk was tried first without success; in 10 this was not tried. The routine in the years previous to 1912 was to begin with split proteid or ordinary mixtures, and to pass to lactic acid milk in case of failure.

In 1912 a more definite routine was adopted. The cases were started on low fat, maltose, and precipitated casein, and were changed to lactic acid milk if they failed to improve. If the movements improved without gain, fat was added and tried before changing to lactic acid milk. If they gained weight, the precipitated casein was changed to total proteid, keeping the same percentage, with a view to determining if this change worked injury. Finally the maltose was changed to lactose, for a similar purpose. My idea was to test the importance of fat, and the relative values of precipitated casein and total proteid, and of maltose and lactose, in these cases. I will not go into the actual figures of this investigation, but will give the conclusions.

I conclude in the first place that neither ordinary modifications of fat, lactose, and proteid, nor the split proteid are adapted to the first treatment of this type of case. I believe that there are two methods of treatment most likely to be successful; in some cases very low or absent fat, maltose, and high casein, will solve the problem, and in others, lactic acid milk. There is evidence that in many cases these two procedures are not interchangeable, but specific for the particular case, but there is no conclusive evidence that many cases which did well on one method might not have done equally well on the other. This will be the subject of a future investigation. Certainly some cases require one specific method.

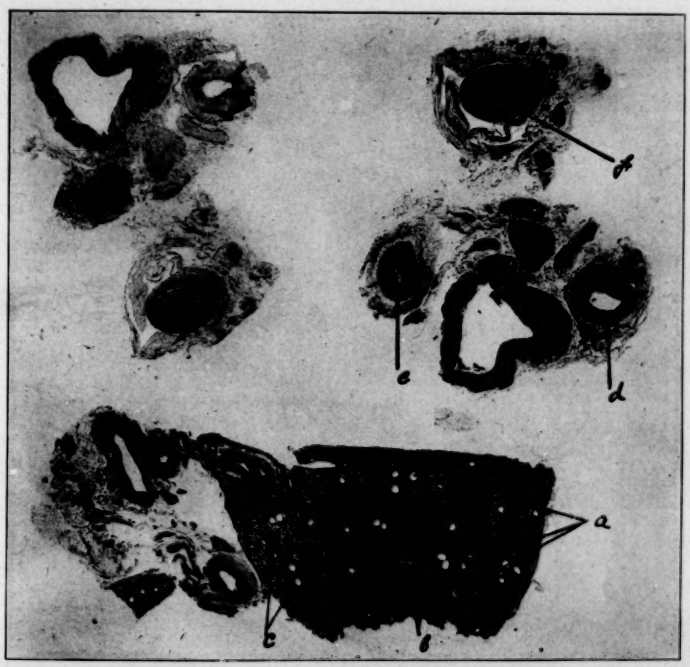
As to the possibility of recognizing at the start which cases require a particular method of treatment, the evidence of this series of cases is entirely negative. The two classes of cases were precisely alike clinically; I could find no evidence of a difference in the clinical pictures. I believe it is impossible to distinguish them with any certainty in chronic cases. I know of no more pressing need than that of enlarging our knowledge of etiology, and methods of diagnosis in these cases. In the meanwhile I believe the routine of treatment adopted at the Infants' Hospital last month is the best I have found for these cases; trying first a fat-free food, with maltose and high casein, adding fat if the movements improve, but the babies fail to gain, and changing to lactic acid milk if they do badly.

Next, as to the value of precipitated casein as compared with total proteid. All but one of my cases did equally well when the same percentage of casein was substituted for precipitated casein. In one case only was there evidence of any advantage in favor of precipitated casein. In the few cases last year where total proteid was tried first, there was no improvement on changing to precipitated casein. The only possible advantage in using precipitated casein is that it enables us to reduce the percentages of lactose and the amount of salts, possible harmful factors. While it did not appear in my series that the amount of lactose (about 2.75%) necessarily added in obtaining 2% total proteid was harmful, when combined with 3.25% maltose to give 6% carbohydrate, yet it is conceivable that there might exist cases of lactose intolerance so severe that even this small amount of lactose could not be borne. I believe such cases are probably very rare, if they exist. Possibly the maltose counteracts the harmful action of the lactose. In general I can see no indication for precipitated casein except as a last resort in very obstinate cases.

The results are very different as regards the relative merits of lactose and maltose in these cases. While in quite a number of the cases the babies did equally well on lactose, in the majority of cases the babies became distinctly worse when lactose was substituted for maltose. The movements became green and they began to

injuries are more obscure. I believe that even if we are unable to agree to the full classification of the gastro-intestinal diseases on the basis of food injuries to metabolism, we owe to Finkelstein and his followers a great debt for calling our attention to the probability that the food elements can and do act injuriously against the

UNILATERAL HEMATURIA—TRUESDALE.



(*a*) Atrophied glomeruli.
(*b*) Increase of interstitial tissue.
(*c*) Free blood in the renal tissue.
(*d, e, f*) Proliferative arteritis leading in *e* and *f* to occlusion of the lumina.

teid, starch, alkalies, etc., etc. The examination of the stools is the important diagnostic test in this class of cases. The second class of food

labor at term. She was seen about two hours after labor began, at which time she was having good pains and the head was already well engaged.

* Read before the New England Pediatric Society, Nov 2, 1912.

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In regard to the fat, in no case was it increased above 2%. In one or two cases this measure was followed by distinctly bad results, but not in any of the 1912 cases. On the other hand, there were a number of cases which, while the movements improved, failed to gain until the fat was increased. I believe, therefore, that it is best to begin with a fat-free food, and to add fat if there is not a satisfactory rate of gain.

In cases on lactic acid milk which improve but do not gain, I have been accustomed to change to an ordinary modification of adequate caloric value, on the theory that after the lactic milk alters the bacterial contents of the intestines, the babies can take an ordinary food. These cases have generally done well, but it is a question whether it is not preferable first to add fat to the lactic acid milk.

The review of the calories taken by the babies in this series which did well is very interesting in connection with the question of minimum caloric requirements. While some cases would only gain when the caloric value of the food was increased, in the majority there appeared to be no relation whatever between the weight and caloric needs. Twenty out of the 28 successful cases gained weight on less than 100 calories per kilo.

Finally, I want to present some considerations bearing on the theories of the etiology of these cases of severe malnutrition. I believe that in the classification of the gastro-intestinal diseases, in the light of the most modern researches and theories, the old distinction between gastric and intestinal will have to be discarded, and that the gastro-intestinal canal must be regarded as a whole, and in close connection with the whole mechanism of nutrition and metabolism The causes of disturbance appear to be divided into two main etiologic agents, food and bacteria. The food injuries may be caused by any one of the three food elements, fat, carbohydrate, and proteid, and probably also by deficiencies or abnormalities in the salts. The food elements appear to exercise their unfavorable influence in two ways. The first is by simple failure to be digested and consequent irritation, leading to vomiting, diarrhea with undigested movements and failure of absorption. In those cases the fat and casein are most at fault, and the treatment is to deal with them by such methods as simple reduction, split proteid, starch, alkalies, etc., etc. The examination of the stools is the important diagnostic test in this class of cases. The second class of food injuries are more obscure. I believe that even if we are unable to agree to the full classification of the gastro-intestinal diseases on the basis of food injuries to metabolism, we owe to Finkelstein and his followers a great debt for calling our attention to the probability that the food elements can and do act injuriously against the whole metabolism in a way more complex and obscure than simple indigestion. These cases cannot yet be diagnosed with certainty clinically. We know they exist, and, in chronic malnutrition, present usually the symptoms of green, irritating movements, often with vomiting. They cannot be distinguished from bacterial types. We know that the food elements chiefly concerned are the salts, fat and lactose, and that the casein is most harmless in this class of cases. They can best be treated by low fat and lactose and high casein, as described specifically above.

The bacterial cases still present a very complex problem. I believe that the old distinction between infecting parasite and fermenting saprophyte can conveniently be discarded, in so far as classification is concerned. We know that the dysentery bacillus, while it infects the tissues, has many of the properties of the putrefying saprophytes. It is better to consider this group of cases simply as caused by bacteria —bacterial. We have been able to separate of certain definite infections, such as dysentery and gas bacillus, and have found appropriate lines of treatment. There remains a large group of cases of which we have the only evidence that they are caused by bacteria in their reaction to certain treatment. We know little about the varieties, properties, action, and pathogenicity of these organisms. Studies such as those of Kendall on the reaction of bacteria to certain carbohydrates and proteid media have not yet led to any very practical results. The chronic cases at least cannot be diagnosed clinically. They appear to resemble the food injuries to metabolism in the clinical picture presented. I believe the best treatment we have for these cases is lactic acid milk.

Clinical Department.

INTRAVENTRICULAR HEMORRHAGE OF THE NEW BORN.*

BY ALEXANDER C. EASTMAN, M.D., SPRINGFIELD, MASS.

THE following case was seen in consultation with Dr. C. H. Porter, to whom I am indebted for much of the history and report of autopsy.

HISTORY OF LABOR.

MRS. C.—Primipara with moderately contracted pelvis, normal pregnancy, O. L. A. position and labor at term. She was seen about two hours after labor began, at which time she was having good pains and the head was already well engaged.

* Read before the New England Pediatric Society, Nov 2, 1912.

After eight hours the os was fully dilated, and the head soon completed descent to the pelvic floor. Here progress ceased; there was no advance for two hours with good pains. Examination showed a normal O. L. A. position, rotation completed, good flexion and great moulding. Forceps were applied, but nothing accomplished, even by very firm traction. The head was evidently impacted at the plane of pelvic contraction. Since the position and so forth was normal, choice lay between pubiotomy, forcible forceps delivery, and embryotomy. Instruments for pubiotomy not being obtainable, it therefore seemed justifiable to apply as great force as would be safe to the mother in another attempt at delivery, rather than kill the child outright. Forceps were applied again and with more than usual force the child was delivered. There was no material injury, save a unilateral tear of cervix and a superficial tear of perineum. The mother made a good recovery and is in good condition six months later.

HISTORY OF CASE.

For about five minutes after birth the child made only slight spasmodic efforts to breath and at the end of that time breathing was established by mouth to mouth insufflation. The child weighed seven pounds and two ounces, was normal in appearance, and the marks of pressure on the head from forceps were not very extensive. The first notable symptom (excepting the delay in breathing) was a marked course tremor or spasm of the lower lip and jaw with each cry. This symptom continued throughout life. The next day there was a slight twitching of hands and arms, and on the third day a tonic flexion of the thighs on the trunk was noticed together with marked rigidity of the elbow. At this time the breast milk was established and the child began to regurgitate all of its feedings. Temperature was normal, castor oil, 1 dram, was given in the forenoon, the breast milk was stopped and a formula of F1, S6, and P.3 was given.

I saw the child the next day or the fourth day after birth. At that time the fontanelle was flat and soft. The eyes were normal, there was some twitching of the hands and a tremor of the jaw when the child cried. There was moderate rigidity and flexion of the arms and thighs. The reflexes were difficult to obtain because of the rigidity. The twitching was not as marked as on the previous day. The throat, heart and lungs were normal. The abdomen was tender but not distended. The temperature was normal and the weight 5lbs. and 15 ounces. Oil had been repeated that morning and a good result obtained which was greenish yellow with curds and mucus. The food was still regurgitated.

From the history and general symptoms a diagnosis of probable, small cerebral hemorrhage was made, although there was no distention of fontanelle and the eyes were normal. Because of lack of localized symptoms it seemed best to continue observation, and as the regurgitation was continuous whey was advised for nourishment. He continued to regurgitate the whey and on the next day he was given half-hour feedings, 1 dram of 2 per cent. fat in a whey mixture. This he retained and the weight increased to 6 lbs. or one ounce gain. At the same time his temperature went up to 102 at 2 P. M., but was 101 at 6 P. M. This dropped further to 99.8 by the next morning and the feedings were continued and retained. There was noticed now for the first time a slight tenseness of the anterior fontanelle. The next two days his condition remained about the same. Temperature about 99, slight distention of fontanelle and constant contraction of arms and legs with spasm of lower jaw and irregular twitching of hands.

His weight continued at 6 lbs. and one or two ounces, for two or three days. I saw him again on the ninth day. He was then having three breast feedings and the remainder whey formula, with an occasional regurgitation of food which quite frequently was projectile. The circumference of the head at this time was 14½ inches; fontanelle was distended; the veins of the head becoming prominent and the general appearance was of a moderate hydrocephalus. The possibility of an acquired hydrocephalus was then considered, but as the prognosis seemed absolutely bad lumbar puncture was postponed.

From that time until the day of his death, which was on the seventeenth day, there was a gradual increase of symptoms. The temperature gradually reaching 104, the weight diminishing to 5 lbs. 6 ounces, the food kept down much of the time until the last two days when everything was regurgitated. Bulging of the fontanelle steadily increased and the sutures separated until at the time of death the head presented the appearance of a typical extreme hydrocephalus. Tonic spasm of the arms and legs continued including opisthotonos and a day or two before death there were short general tonic convulsions, also the chronic twitchings of hands and jaw continued as at first. The pupils remained normal.

AUTOPSY.

Lumbar puncture gave a moderate amount of dark fluid blood. On opening the skull, considerable free dark fluid blood escaped from between the dura and pia. The convexity of the brain was clean, there were no clots but the veins were intensely engorged. Both lateral ventricles were filled with moderate sized blood clots.

The size of the blood clots was not sufficient to cause the extreme enlargement of the head, and this must have been due partly to the free blood between the dura and pia. In other words, we had a cerebral hemorrhage into the lateral ventricles, but the whole condition presented a combined external and internal hemotocephalus.

TOXICITY OF BILE WITH THE REPORT OF AN UNUSUAL CASE.

BY W. E. LADD, M.D., BOSTON.

THE question of the effect upon the individual of bile liberted into the peritoneal cavity is one that is frequently arising in surgery of and diseases of the gall bladder. For example, in cases of suppurative cholecystitis with perforation, it is a question which is the more important factor in the sickness of the patient,—the toxemia of the bile in the peritoneal cavity, or the bacterial toxemia from the infected gall bladder. With a view to clearing up the pathology of the effect of bile in the peritoneal cavity, Bunting and Brown[1] did some experimental

work on rabbits. Their experiments indicated that bile in the peritoneal cavity had a very toxic effect, and that between .25 and .50 c.c. per kilogram was a fatal dose. The rabbits in which .50 c.c. of bile per kilogram were injected into the peritoneal cavity, died within 24 hours. They believed that death was due to the direct action of bile upon the myocardium. They found also that the bile produced necrosis of every type of tissue with which it came in contact. Fat necrosis was constant and was usually associated with hemorrhagic necrosis of the pancreas. They also found evidence of the toxic action of the bile being powerful in the remote tissues, as the heart, kidneys and blood cells. Their experiments were largely done by making an abdominal incision under aseptic precautions and either incising the gall bladder or aspirating the bile through a needle.

The following case, occurring in the general surgical service of the Children's Hospital, presented conditions very similar to those produced experimentally by Bunting and Brown.

Case. Caroline C., 4 years, 11 months.

Entered Surgical Service, Children's Hospital, July 31, 1912.

Family History.—Father, mother and two other children living and well.

Past History.—Scarlet fever one year ago; otherwise not remarkable.

Present Illness.—Fourteen days ago child was playing horse on a railroad tie suspended on two saw horses. She fell off onto the ground on her back and the tie fell across her abdomen. Her mother put her to bed and said that she complained of considerable pain in the left side of her abdomen and chest. The pain came on spasmodically and between the attacks the child appeared comparatively well. In fact, a week after the accident she was seen by a physician who, after a physical examination, thought that nothing was the matter with her. She has had some vomiting daily, and the mother thinks the bowels have moved only three times in 14 days.

Physical Examination.—Fairly developed and nourished child. Pupils equal and react to light and distance. Tongue presents heavy white coating. Throat normal. Heart normal. Lungs resonant throughout; no rales. Abdomen soft; no involuntary spasm; no distension; slight general tenderness. Extremities normal. Pulse 110. Temperature 100. White count 20,000.

August 1, 1912.—Seen in consultation by Dr. J. L. Morse, who suggested existence of some inflammatory condition in upper abdomen as result of injury (possibly perihepatitis) and recommended observation for the present.

August 8, 1912.—Child's general condition does not seem so good. Abdominal examination shows slight distension and dullness in either flank, with more spasm in the upper abdomen. Temperature 102.5 Exploratory operation decided on.

August 9, 1912.—Median incision between xyphoid and umbilicus. The omentum was found adherent to peritoneum. On opening the peritoneal cavity a large amount of biliary fluid escaped. The lesser peritoneal cavity was found bulging. This was opened and a large amount of biliary fluid sponged out. Culture taken. When the lesser peritoneal cavity was sponged dry, a small triangular tear was found in the lesser peritoneum, just to the left of the hepatic artery and close to the liver, and making a rent in a bile duct, probably the left hepatic. It was considered impracticable to suture the duct on account of its small size, and a cigarette drain was therefore introduced into the rent to stimulate granulation tissue and to drain the cavity. The abdomen was closed in layers to the drain.

The culture taken at time of operation proved sterile.

Subsequent to operation the patient drained bile copiously for 10 days, when it began to diminish in amount. The stitches were removed and a small wick inserted just through the abdominal wound in place of the drain.

The child was sent home on the thirteenth day following operation.

A small sinus remained for some time, but eventually closed.

The child was seen seven or eight weeks after the operation and presented a firm abdominal scar and was apparently perfectly well.

It is interesting to note that in this patient, upon whom I operated, though there was probably more bile in proportion liberated in the peritoneal cavity than in the experimental rabbits of Bunting and Brown, the toxic effect was considerably less. The rabbits died in 24 hours, with a comparatively small dose of bile; the child remained for three weeks with a comparatively large dose of bile and only became moderately sick. The rabbits showed necrosis of every type of tissue that the bile came in contact with; and showed fat necrosis usually associated with hemorrhagic necrosis of the pancreas.

So far as I could see at operation, the bile caused no lesions in the human abdomen except adhesions beween the omentum and peritoneum.

Frothingham and Minot[2] have published a preliminary note on the effect of bovine bile in rabbits, in which they failed to find the marked pathological changes reported by Bunting and Brown, which suggests that the effect of bovine bile more closely resembles that of human bile. Whatever the effect of animal bile in the abdominal cavity of animals, it seems clear from the case reported above that a large quantity of bile may escape into the peritoneal cavity of the human being without causing a fatal result or marked necrosis of tissue, though it may cause considerable sickness and general toxemia, associated with irritation, vomiting and spasmodic attacks of pain.

[1] Jour. Exp. Med., Nov. 1, 1911, p. 445.
[2] Jour. Med. Research, Sept., 1912, p. 79.

Honorary Degree for Dr. Osler.—The honorary degree of D.C.L. has been conferred by Durham University, England, on Dr. Sir William Osler, regius professor of medicine at Oxford.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF NOVEMBER 2, 1912.

JAMES M. JACKSON, M.D., President; FRITZ B. TALBOT, M.D., Secretary.

DR. WALTER B. SWIFT read a paper on

LISPING—CASE AND TREATMENT.*

DISCUSSION.

DR. FRITZ B. TALBOT, Dr. Swift's paper: We are very glad to hear that someone is taking an interest in these lisping children, because a great many of them come to our clinics and up to date nothing has been done for them; it is encouraging to feel that we can now send them to some one who will give them the proper attention and training.

DR. SWIFT: The case shown tonight was under treatment for about ten days before showing any improvement, after which time the improvement was rapid. The hardest thing at first is to get the interest of the child. In this little girl no other treatment was received excepting what I gave her. Our clinic at the Psychopathic Hospital is the only one in the city. You may be interested to know, those of you who are new to the subject, that there is a very large clinic for speech defects in Berlin, with a professor at the head, one in Bonn, and one in New York, so that this specialty and the training of individuals to take care of such cases is by no means an untried thing. There are one or two points still I think perhaps might be brought out. In the effort to induce expression of various sorts, there are two methods in the world of dramatic art or elocution,—one is the psychological method, which aims to get results by presenting objects of thought; another is a school which aims to get dramatic expression through the assuming of attitudes, the external, mechanical method. Of course with those two methods of expression, whether one or the other should be used, depends on the natural makeup of the child. In this little girl I could get no response whatever from requests to form sentences, everything being run together, but with the method of external emphasis the words were brought out clearly, which shows that the understanding and the psychological side and so on were all intact and there was merely an inhibition of its expression. Most of these cases take a great deal of study and investigation; many of them take an extensive psychoanalysis to find out the background, and thus they become very interesting studies. I want at this point to express my thanks to Dr. Southard for permission to study this case and to present it here this evening.

DR. CHARLES HUNTER DUNN read a paper on

CLINICAL STUDIES ON FEEDING IN INFANTILE MALNUTRITION.†

DISCUSSION.

DR. J. L. MORSE: There is so much to be said I hardly know where to begin, and I am afraid I shall not know where to stop. In the first place, I want to say that I agree with practically everything that Dr. Dunn has said. A good deal of this ground that Dr. Dunn has been over in October I have gone over in the spring months at the Infants' Hospital in the same way, and some of you may remember a paper I read at a meeting of the American Pediatric Society, in which I came to somewhat the same conclusions. My experience agrees with his in that we never get good results from precipitated casein or buttermilk when there is vomiting. I have learned in the last two or three years to be very much afraid of whey and whey mixtures in the type of case which has green, irritating stools. On the chances these babies do badly if they get a split proteid. I do not mean to say, however, that whey is not a most useful resource in cases of indigestion not of the fermental type. My experience has been a good deal like Dr. Dunn's in comparing the precipitated casein with total proteids. I have done exactly the same things, have put the babies on to precipitated casein and then changed them over to total proteids and vice versa, and found as he has that it seemed to make very little difference. There is one point to be remembered, however, in comparing precipitated casein with total proteids and that is in the precipitated casein we have largely gotten rid of the salts, while in the total proteids they are there. It is probable that the salts are a source of danger or the cause of the trouble in some of these cases. As to the gain on less than 100 calories per kilo. In that connection, of course, we have always to remember that many of these babies are pretty thoroughly dried out and we are very likely to get a considerable initial gain from the storing up of water in tissues and that this gain will persist if the baby does well. Then I have also found that babies will hold their weight on about 75 calories per kilo and that many of them will for a time gain pretty steadily on less than 100 calories per kilo. I had one baby at the Infants' Hospital last spring that gained steadily for several weeks on 50 calories per kilo. It seems to me, too, that Dr. Dunn has given Finkelstein and his school just about the appreciation which they deserve, that is for opening up a very large field to us, and also in showing that their method of feeding with straight eiweiss milch is not suitable for all cases.

DR. F. B. TALBOT: I agree in the main with what Dr. Dunn and Dr. Morse have said. I did not hear Dr. Dunn use the words "irritating, green stools" as Dr. Morse used them, and it seems to me that the fact whether the stools irritated or not is one of the most important factors we have in deciding whether carbohydrate is digested or not. Starch, which is a polysaccharide is first split by the digestive juices into the disaccharide and later into maltose, in which form it is absorbed into the blood. If the digestion is abnormal the splitting of the maltose can be carried on further into acetic or lactic acid. If the acids are strong enough they irritate the buttocks. Information as to whether the buttocks are irritated or not is important because in my experience the digestion always improves in such cases when the sugar was diminished. Another factor was omitted in the description of the relation between precipitated casein and a comparison of the total proteids. It is a well known fact that if the relative proportions of the fat and the proteids are varied, the reaction of the stool may change accordingly.

* See JOURNAL, page 160.
† See JOURNAL, page 161.

When the reaction of the stool changes from acid to alkaline the stool changes from a rather loose to a formed and sometimes a constipated stool; in other words, if Dr. Kendall is right, the putrefactive bacteria have gotten a foothold and have replaced the fermentative bacteria. I noticed on several of the charts that there was such a change and I wondered whether it was not the change of the relative proportions of the fat and sugar that improved the digestion rather than the precipitated casein or total protein. Many babies have gained on less than 100 calories per kilo of body weight. Last spring I had an opportunity to determine exactly how much carbon dioxide was excreted by nearly normal babies, and in Dr. Benedict's laboratory we found that the amount excreted depended on muscular activity. Practically all the estimations of the caloric needs of babies have been obtained from the carbon dioxide excretion alone without taking into consideration the oxygen consumption. In a normal baby the carbon dioxide excretion can increase 50% when an absolutely quiet baby cries lustily, and I think that the activity of the baby can explain many of the results that are not explained as Dr. Morse explained them, by the gain in weight being due to the increased water. I believe that this may explain a very large number of cases in which the baby is so weak that it does not move enough to use up the energy which is given in the food and that such a baby does not need so much food as an active, lusty baby that is crying a great deal and exercising itself by waving its arms and kicking.

DR. DUNN in closing: In all these cases every effort was made to exclude those with syphilis and tetanus; even cases with otitis media were excluded. The first line of treatment was to use 3.50% casein instead of 2%. This is as high as I went. I used only 2% casein which would have been increased if any case had not done well. The ones which did badly and were changed to lactic acid milk became so much worse on the Finkelstein feeding that it was evident that there was a bacterial infection and they responded immediately to lactic acid milk. I think that there certainly seemed to be a distinct strategic difference between the two types of cases which responded to the lactic acid milk and to treatment with high casein and low fat, but no clinical difference.

A CASE OF ABNORMAL PHYSICAL AND SEXUAL DEVELOPMENT IN AN INFANT OF TWO YEARS, PROBABLY DUE TO TUMOR OF THE PINEAL GLAND.

BY JOHN LOVETT MORSE, A. M., M. D.

ABSTRACT.

A boy, 23 months old, normal in size and shape at birth, began to grow very rapidly at six months. Voice became harsh at 16 months. Seen at 23 months. General development that of a child of 4½ years; development of bones that of a child of 6½ years; mentality about that of 16 or 18 months. Voice hoarse. Much pubic hair and a little hair in axillae. Penis and testicles very large. Wassermann and Von Pirquet tests negative. X-ray showed no enlargement of sella turcica.

Condition almost certainly due to new growth of either pineal gland or the adrenals. Difficult to distinguish between them because of similarity of the symptoms of the two conditions. His sex strongly in favor of a tumor of the pineal gland; his age is consistent with either; retarded mental development somewhat in favor of an adrenal tumor. Weight of evidence a little in favor of a tumor of pineal gland.

DR. ALEXANDER C. EASTMAN read a paper on

INTERVENTRICULAR HEMORRHAGE OF THE NEW BORN.*

AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING, HELD AT BOSTON, MASS., MAY 30 TO JUNE 1, 1912.

(*Concluded from page 133.*)

ACUTE INFECTIOUS TRANSVERSE MYELITIS WITH COMPLETE RECOVERY DUE TO THE VIRUS OF POLIOMYELITIS.

DR. B. SACHS, New York: The patient, a young girl of 18, presented all the symptoms of a complete acute transverse myelitis. A number of unusual symptoms and the marked tendency to improvement early led to the suspicion that the case was clinically not unlike one of acute poliomyelitis anterior. This suspicion was confirmed by the strictest laboratory proof.

DISCUSSION.

DR. THEODORE DILLER, Pittsburg, Pa.: I have seen astonishing recovery in one case of the Landry type in which there was complete paralysis of both arms and in a second case in which there was a transverse myelitis of unknown origin which was not syphilitic in character. I refer to these two cases because they indicate that in the most desperate cases recovery will sometimes occur.

DR. GRAEME M. HAMMOND, New York: In an epidemic which occurred in Princeton University, five young men were taken ill within two or three days. Four of these were undoubtedly cases of poliomyelitis. The fifth one was a case of transverse myelitis. He has not recovered yet, but is recovering. It is a typical case of transverse myelitis occurring in poliomyelitis.

MOTION PICTURES OF NERVOUS AND MENTAL DISEASES.

DR. T. H. WEISENBURG, Philadelphia, Pa.: The use of moving pictures in medicine is of comparatively recent origin, but their use for illustration of scientific subjects is slowly developing and teaching institutions are equipping themselves to utilize them. The pictures offer great advantages for teaching medical students as the teacher has at his command illustrations of certain diseases and the student pays more attention to what he sees when illustrated in this manner than when seeing the patient. Also by the photographs it is possible to detect certain phenomena which cannot be seen by the naked eye. It is my purpose to show everything that it is possible to show in the realm of

* See JOURNAL, page 165.

nervous and mental symptomatology. It is interesting also that the cases of patients who have since died can be reported and their ailments shown as they suffered in life.

NEUROLOGICAL ECONOMICS SYMPOSIUM.

DR. CHARLES L. DANA, New York: Neurology is a very important branch of medicine and should have for its end not only the teaching of the individual but of the community. For the past year I have been chairman of a committee which has been organizing several sub-committees and has done considerable work which it is not ready to report on yet. Of the special activities in which I have been interested one has been that of expert testimony. A year ago we passed a series of resolutions in which we tried to formulate certain rules regarding the conduct of experts and expressed certain hopes regarding the reforming of legal procedures. We wanted to establish a minimum neurological qualification of experts. We wanted the payment of experts made by or through the courts and wanted abolition of the contingent fee. The movement we have initiated has made progress and should be continued.

INDUSTRIAL OCCUPATIONAL NEUROSES.

DR. M. ALLEN STARR, New York: There are many dangers from accident in mines from exposure to dust in various factories and from exposure to poisonous fumes. The subject of particular interest to the neurologists is the effects of poisoning by lead, phosphorus, mercury and arsenic. These are employed in a large number of industries, there being 130 industries in which lead enters as a factor and in which workmen are exposed to lead poisoning. There are dangers of plumbism in the manufacture of pottery. In England this has led to the passage of laws for preventing the employment of women in this trade, reducing the percentage of lead in the glaze to 5 per cent. and enforcing methods of cleanliness and ventilation in factories. I favor the passage of laws regulating industries by the various State Legislatures and believe there is need of education among operatives employed in dangerous trades. This education should be given by the employers by means of notices posted in factories and distributed among the employees and by means of instruction given by the Labor Unions to their members. I also believe that if such information were given to manufacturers and their attention called to the importance to the health of their employees many needed reforms would be voluntarily carried through by them.

DISCUSSION.

DR. CHARLES L. DANA, New York: There are some particular things which we as individuals may say in regard to the matter. We come in contact a great deal with occupation neuroses. For example, the occupation neuroses, the cramps, neuritis, neuralgias, make up about 1 per cent. of the material in my dispensary. It is along these lines that we as neurologists can do a good deal of work. Then another thing that bears upon this question is the importance of domestic, social and industrial conditions in connection with the development of psychoneuroses. By the help of social workers and by prying into the environmental and working conditions of the dispensary patients I have found that the industrial conditions are extraordinarily important in the development of these psychoneuroses.

DR. M. ALLEN STARR, New York: If every man in this room would take the pains to have in his clinic a card catalog introduced by which every disease that comes in that is referable to an occupation shall be tabulated, at the end of two to five years we will have a mass of statistics that will be of great interest and use to us in working on this subject. Our information is indefinite at the present time.

SOCIAL WORK IN CONNECTION WITH NEUROLOGICAL DISPENSARIES.

DR. JAMES J. PUTNAM, Boston: The general object and character of the social service work at the Massachusetts General Hospital are now so well-known that it is unnecessary to dwell upon that aspect of the subject. The plan has been, as regards that part of the work which relates to neurological cases, to spend a considerable amount of time over a small number of persons rather than a little time over a larger number. Two paid workers are now employed, one receiving $1000 the other $720 a year. In addition, an expert psychologist has given a considerable part of his time to working among chosen cases and studying the mental condition of boys sent from the Juvenile Court. The work of this gentleman has been a valuable addition and he has been remunerated to a certain extent from a special fund. The department has no organic connection with the hospital, but it is hoped that the improvement in standards of work will eventually make itself felt even in the routine work of the hospital. Besides going about among patients and making friends with them, and studying the personal condition of their lives, this department has carried on an occupation class where girls and women are taught pottery work. In general terms it may be said that the chief element of success in our work has been the devotion and intelligence of the social workers.

SOCIAL SERVICE AND SOCIAL RESEARCH IN NEUROLOGICAL HOSPITALS AND DISPENSARIES.

DR. JOSEPH COLLINS, New York: The sick person who goes to a public hospital or dispensary should be so handled that this shall not prove to be the first step toward loss of voluntary independence. There should be an actual inspection from a social standpoint of the attitude of each patient toward the payment of fees in order that it shall not be easier for him to assume a more dependent attitude toward the institution than it is toward a private patient, nor easier to cheat the dispensary by fraudulent representations than to cheat the private physician. This relation of the patient to the institution should be under continuous inspection during the entire time of his connection with it. In judging the results of the patient's contact with the institution a criterion should be established by which an estimate can be made of the adjustment of the individual to life in terms of occupation. The new social situation arising from the recognition of the residential status of the patient contains opportunities for social instruction that should be fully utilized. It is vitally important to know what effect the costly process of curing disease is going to have on the future social relations of the individual. Science and common sense both agree that the indi-

vidual must be defined in terms of his ability to put forth effort in economical ways toward well chosen aims. A sound sociology, on a sound psychological basis will insist upon studying an individual suffering from disease and resident in a hospital not only in terms of his native energy but of his natural or acquired tendencies in expending them. When this observation is carried on in connection with actual occupation a situation is created which is favorable for educational purposes and which should be utilized through persuasion, argument or actual demonstration.

DISCUSSION.

DR. CHARLES L. DANA, New York: My experience is that no neurological clinic is complete or can be really effective to do good work without having a social service connected with it. Everyone who has tried it will realize that fact. It was not always possible to have one.

DR. MORTON PRINCE, Boston: A social service is one of the most important connected with the neurological clinic. After an experience of a great many years I have been impressed more and more with the necessity of some means of looking after the patient not only while he is in the hospital but after he leaves. A large proportion of the patients who come to the clinic are afflicted with functional disease of one kind or another, which comes in a large extent from the inability of the patient to adapt himself to environment.

RETARDATION AND CONSTITUTIONAL INFERIORITY IN CONNECTION WITH EDUCATION AND CRIME.

DR. HUGH T. PATRICK, Chicago, Ill.: Dr. Healy has been working with old offenders in the Juvenile Courts of Chicago for about two years. His study of these criminals has been intensive. He goes as far as possible into the questions of heredity and environment, including social influences, family influences and everything possible. He makes a medical examination and he makes to the extent of his ability and time allowed a psychological examination. He has made a tentative classification for me based on 800 cases. The largest single causative factor of delinquency recognizable by study of the individual offender is mental defect. They belong in the class of individuals concerning which society needs the assistance and advice of physicians. Society needs this advice while these offenders are young because a very potential factor in the criminal is the crime habit. It is a tremendous force in criminology and this develops young. One point which Dr. Healy shows in figures and in a perfectly definite way is that a good many of these cases are criminals; they are repeated and chronic offenders because the condition has not been recognized and consequently the child has not been properly directed. That this work of Dr. Healy's has been appreciated is shown by the fact that at the meeting of the Board in my office the Judge of the Juvenile Court said that he did not know what he would do without Dr. Healy's assistance in his court as these questions are constantly coming up and he would not care to take the responsibility of deciding them. An effort is being made to get a man to do similar work in the court for adult criminals and the money has been provided to pay for such work but we have been unable to find a man to undertake it. Dr. Healy also greatly desires an assistant.

PRESENTATION OF BRAIN SPECIMENS EXHIBITING LESIONS OF SPECIAL INTEREST FOR LOCALIZATION OF APHASIC DISORDERS.

DR. LA SALLE ARCHAMBAULT, Albany, N. Y.: I present a practical demonstration of the lesions found in two cases carefully observed clinically. In the first case there is complete destruction of the posterior third of the left inferior frontal convolution in a right-handed subject who never presented any evidence of aphasia. In the second case an old apoplectic scar occupies the anterior portion of the left middle frontal convolution and a relatively recent hemorrhagic focus destroys the posterior two-thirds of the left tenticular nucleus, but the left inferior frontal convolution is intact. The patient, who was right-handed presented well marked, though not absolute, motor aphasia.

EPILEPSY IN THE ADULT.

DR. EDWARD FISHER, New York: For a long time I have been interested in epilepsy in the adult, especially senile epilepsy. Epilepsy frequently occurs in young adults without any previous history of seizures. In these cases there is no arteriosclerotic basis as there is in the central form. They differ also entirely from the class of epileptics which have their origin in the early life. One of the principal causes of epilepsy in the young adult is syphilis. Not that we get necessarily all the symptoms of syphilitic endarteritis or of paresis, although at times there is difficulty in making a differential diagnosis between these conditions and general paresis. I refer more to the type of young people of 20 to 25 who are actively engaged in some occupation as students or some excessive occupation in their lives perhaps where the special senses are called upon, especially where there is associated a great deal of anxiety. In the adult cases we do not notice the mental deterioration which is observed in childhood. They are as clear mentally after the attack and resume their vocation with the same mental grasp as before. They do not give either the facial appearance of the epileptic. I would therefore in getting at the pathology of these cases not look upon toxines or over strain as the basic cause, simply looking at it as an exciting cause. There must be some fundamental weakness or instability back of the condition. These cases are not easy of treatment, they require rest, but do not respond better to treatment than the other forms of epilepsy.

ARTERIOSCLEROSIS PROBABLY NOT AN IMPORTANT FACTOR IN THE ETIOLOGY OF PROGNOSIS OF INVOLUTION PSYCHOSES.

DR. G. L. WALTON, Boston, Mass.: Arteriosclerosis without gross cerebral lesion should not be too readily accepted as cause of symptoms. The writer has examined with reference to clinical evidence of this condition 100 cases of marked involution psychosis, choosing the depressed phase of manic-depressive insanity commonly classed as involutional, often with agitation, with self-accusation and with somatic delusions. The same number of control cases has been studied for comparison. The result has shown no greater prevalence of palpable arteries, high blood pressure, apoplectiform attacks or other evidence of arteriosclerosis among the psychoses than among the control cases of the same age and condition. Until, therefore, definite

evidence is forthcoming beyond the fact that post-mortem examination sometimes reveals cerebral arteriosclerosis, no reason appears for assuming its presence, or for regarding it, when found, as other than a coincidence. Furthermore, so large a proportion of these cases fell in the chronic and hopeless class as to render it doubtful if arteriosclerosis should be regarded as having an important bearing on the prognosis.

THE NEUROLOGICAL DISTURBANCES OF ALZHEIMER'S DISEASE.

DR. ALBERT M. BARRETT, Ann Arbor, Mich.: A woman at the age of 33 developed a progressive spastic atrophic paralysis, involving the head, trunk and extremities. This was accompanied by profound mental deterioration. Death occurred after two years. The pathological findings were those of marked cerebral atrophy with secondary cord degenerations, the histological process in the brain being the intracellular neuro-fibrilo degenerations and plaque formation of Alzheimer's disease. The case is unique in the early age of occurrence of this disease and in the severity of the neurological disturbances.

DISCUSSION.

DR. HENRY M. COTTON, Trenton, New Jersey: I think Dr. Barrett's communication not only extremely interesting but extremely important from the standpoint of histology. We have heard this morning that perhaps histology still has a place in psychiatry. Dr. Barrett's paper shows that it not only has a place, but a very important place. This disease of Alzheimer's, is an important complex and this case is interesting because of the careful clinical analysis of the symptoms and the neurological examination showing not only the classical findings, but the cord degeneration as well. We should emphasize in a broader sense the progress of the pathological histology as shown by this case.

DR. JOSEPH COLLINS, New York: I rise principally to congratulate Dr. Barrett on the model way in which his case has been studied and reported. It is really a great pleasure to see a recent acquisition to the Society handle a subject in the masterly way in which this has been done by Dr. Barrett.

THE METASTASIS OF HYPERNEPHROMA IN THE NERVOUS SYSTEM; JACKSONIAN EPILEPSY CAUSED BY SUCH LESION.

DR. JOSEPH COLLINS AND DR. R. G. ARMOUR, New York: A man 45 years old who had been in good health developed typical Jacksonian epilepsy, displaying itself by twitching of the left thumb and index finger, paresthesia of the left hand and forearm and followed on five occasions by loss of consciousness and generalized convulsions. Gradually there developed loss of power and of dexterity in the left upper extremity and to a slight degree in the entire left half of the body. The only definite physical signs were loss of sense of position in the left hand and fingers and absence of the left plantar reflex. There was an inconstant astereognesis of the left hand, and a mild increase of the tendon jerks of the left half of the body. A week before his death a slow rhythmical tremor of the left thumb and index finger consisting of adductor movements about one per second developed. When the abdominal cavity was opened a large whitish tumor was found in the right flank, invading the upper pole of the kidney and showing microscopically the structure of adrenal tissue. There was metastasis to various organs including the brain, but in the brain all suggestion of adrenal tissue was lost.

CASE OF CONFUSIONAL PSYCHOSIS FOLLOWING HYSTERECTOMY.

DR. RICHARD DEWEY, Wauwatosa, Wis.: Patient of 47, after showing climacteric changes and anemia, underwent curettage in August, 1909, then found to have multiple uterine fibromyoma (which produced marked autosuggestion of cancer). September, 1909, vaginal hysterectomy. No post-operative physical complications but mental state abnormal. Refused food largely and after 14 days, totally. Mechanical feeding became necessary and has remained so for two and one-half years. Delirium continuing at the hospital, transfer to sanitarium four months after operation. At this time completely disoriented as to time and place; constant visual and auditory hallucinations and persecutory ideas. Disregard of all evacuations. Numerous brief periods of partial or complete lucidity—the longest, three hours. Frequent motor agitation, but no voluntary or purposive movement. Will not walk or stand, though strong and well-nourished. Indicanuria present at times. Lucid periods often complete as to memory and logical power. Voluntary attention extremely weak. Mental state (during lucid period) seems normal except for this and the natural inability to grasp present situation and the retention of persecutory ideas. The therapy has consisted in thyroid feeding, continuous baths, sleeping porch. The patient is still in statu quo except that consciousness has widened somewhat.

DISCUSSION.

DR. F. W. LANGDON, Cincinnati, O.: Neurasthenics and psychasthenics are bad subjects and it would be better to postpone operations until the patient's resisting powers are on a higher plane or until she has passed through the impending crisis whatever it may be of an epochal character.

Book Reviews.

The Clinical Pathology of Syphilis and Parasyphilis, and Its Value for Diagnosis and Controlling Treatment. By HUGH WANSEY BAYLY, M.A., M.R.C.S., L.R.C.P., Pathologist to the London Lock Hospitals, Clinical Pathologist to the National Hospital for the Paralyzed and Epileptic, Assistant in the Bacteriological Department of St. George's Hospital. New York: William Wood and Company. 1912.

Many books are being published on this general subject, a matter which is by no means to be regretted. This addition to the list is a well-arranged, brief statement of our existing knowledge, written and published in such a form as to be readily useful for practitioners and students—the design for which it was written. The book is to be recommended.

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THE DEATH OF HENRY THE EIGHTH.

PERHAPS the death-beds of kings ought not to excite more interest, even to a physician, than those of their even-Christians. Yet, though they are killed by the same diseases, there is something in the circumstances of a monarch's demise which so emphasizes the contrast of his high estate in life with his dethronement in death as to give even the medical details of his illness a peculiar fascination.

One of the proudest and most magnificent, though not in all respects personally praiseworthy, of kings in history was Henry VIII of England. His marital experience has been a subject for interested comment and speculation by succeeding generations; and politically he exercised as important an influence on the course of civilization in England as did any of her sovereigns, not excepting even the great Elizabeth.

Henry VIII died on January 28, 1547. Some episodes from his medical history have been collected and published from time to time in the *British Medical Journal* (Vol. i, 1910, pp. 1303, 1365; Vol. ii, 1912, Aug. 31). Young, in his "Annals of the Barber Surgeons," states that Henry VIII suffered, for many years before his death, from a "sorre legge," for which he was treated by a "meane practizer at Maidstone," one Thomas Vicary, who in 1531 became sergeant-surgeon. Henry also had a fistula, for which he was treated in 1539 by Sir John Alyffe. Further details of his ailments during his life have not been recorded.

By 1546 it was evident to all about the court that Henry's death was at hand. "From a handsome, athletic man he had become a mass of loathesome infirmities. He was bloated in face, and so unwieldly in body that he could not pass through any ordinary door, and could be moved from one room to another only by the help of machinery and a number of attendants. His legs were swollen and ulcerated, the festering sores causing an unbearable stench. Towards the end he could neither walk nor stand." The exact diagnosis of Henry's case has not been officially determined. The clinical picture suggests a combination of lues and cardio-renal disease.

Accounts of Henry's death-scene are given by Lingard and by Froude; but the best is taken from Richard Davey's "The Nine Days' Queen," and may be quoted in part as follows:

"On the night of Wednesday, January 27th, 1547, Henry Tudor lay dying. . . The once puissant and magnificent Henry VIII, King of England, France, and Ireland, and Defender of the Faith, was now a mass of deformed flesh, eaten up and disfigured by a complication of disorders. So swollen were the miserable man's hands, arms, and legs, that he could move only with great pain, and then only with the aid of a mechanical contrivance. . . Though little over 56 years of age, the dying Monarch's hair had turned quite white, and his beard, formerly so well trimmed, had grown scant and straggling. His steel-gray eyes looked as small in proportion to the broad, bloated face as those set in the elephant's enormous mask, but they still retained their ophidian glitter. The dying king had been unusually irritable throughout the weary day. At times indeed he was delirious, but on the whole his mind remained fairly clear. At about six o'clock in the afternoon he awakened out of a deep sleep or lethargy and asked for a cup of white wine, which was given him. Presently he wandered again, the result, perhaps, of the draught of wine, and shouted, 'Monks, monks!'. . . Three times, too, and very distinctly, he cried out the name, 'Nan Boleyn.' After that he kept his eyes fixed on a certain spot near his bedside, where, it may be, his fancy showed him the menacing wraith of his murdered wife. This outburst of feverish excitement was followed by a lull, and presently the king grew calmer, and fell into a profound slumber. . . The physicians in attendance upon the king were Dr. Wendy and Dr. Owen, who had brought the Prince of Wales into the world, and who subsequently assisted at the deathbeds of Edward VI and Mary. With them was Dr. John Gale, the king's surgeon-in-ordinary, who had awaited upon Henry and his army when in France. . . Between seven and eight in the evening of 27th January, Sir Anthony Denny, who had been watching his master very closely, thought he perceived signs that the end was approaching.

Stooping over him, he whispered into the dying ear a message especially dreadful to one who, like Henry, held the mere mention of death in horror, warning him that his hour was very near. The king, although in great agony, evidently understood what Denny had said, and is reported to have answered that he would suffer no ecclesiastic near him but Cranmer, who was immediately sent for. . . Arriving about two o'clock in the morning, he found the king almost speechless, but in full possession of his faculties, and exhorted him, in a few words, to repent him of his sins. Henry pressed the churchman's hand, and muttering the significant words, 'All is lost!' immediately expired."

Whatever Henry's crimes,—and they were no doubt many,—it seems that the sufferings of his last illness must have been almost an adequate mundane punishment. Though he had, doubtless, the best medical care that his day afforded, it is to be feared that he lacked much that modern science might have done, at least to promote his comfort. It is perhaps not the least important reflection to be derived from a consideration of his end, that our world of today is not only a much better place to live in, but a much better place to die in than was pre-Elizabethan England.

NEW HEALTH DEPARTMENT OR PRESENT BUREAU?

THERE can be but one opinion among thinking men as to the desirability and even necessity of a unification and extension of all national agencies designed to conserve and promote the public health. Sentiment to this effect is markedly increasing among laity and physicians alike. While legislation effecting this highly desirable end is to be earnestly approved, there is a second question involved of almost equal importance. Shall there be created *de novo* a full-fledged Department of Health, headed by a secretary sitting in the President's cabinet, or shall all national health activities be taken over by the existing Public Health Service?

The motive of those who favor a new department must be found in one of two ideas, either they wish to create new offices for new office-holders, or they are actuated by an honest desire to further the interests of national health protection. The former motive is untenable from any standpoint. Granting then, the sincerity of the advocates of a new department, it would seem that their wiser course would be to support the more logical plan of extending the agencies already operating to maintain a high standard of public health. Many considerations strongly favor such a plan.

Founded by an act of Congress in 1798 as a bureau of the Treasury Department, this service was originally known as the Marine Hospital Service and had for its function the medical relief of American merchant seamen and the maintenance of marine hospitals for their care. It has kept this function for 114 years, but in addition many new and important functions have been added. In 1902 the name was changed to the Public Health and Marine Hospital Service, and again on August 13, 1912, Congress changed the name, this time to the more usable, Public Health Service. The catalogue of its activities for a year covers every phase of national health protection at home and abroad. The best health administration the Philippine Islands ever had, the quarantine of the Canal Zone, the hygiene of mines and prevention of mining accidents, the eradication of bubonic plague, yellow fever, malaria, typhoid and tuberculosis, a wide campaign against hookworm and pellagra, the oversight of public health work in Alaska, the study of means for decreasing disease among the American Indians,—these are but a few of the varied features of its diverse and fascinating activities.

The United States Public Health Service has now a splendidly trained and efficiently organized corps of picked men, chosen by the strictest of competitive examinations. Most of these men have grown up with the Service and have had an extensive and invaluable training in all branches of public health work. They know how to meet emergencies, how to handle and subdue sudden epidemics, and how to work effectively with local authorities and reconcile conflicting local interests. The pronouncements of the Service are recognized at home and abroad as authoritative. Its scientific work is widely known. Its name carries authority and influence. The Service has an efficient administrative organization, experienced in the work and in close touch with the medical and scientific progress of the world.

The excellent manner in which the Public Health Service has been conducted in the past, and the superior character of its work are the best guarantees for its future activity. Few proportionate advantages have been proposed for the creation of a new department to compensate for the additional expense, the clerical reorgan-

ization it would necessitate, and the lack of a public health experience and administration which are the possession of the present Public Health Service. To enlarge the functions of the present bureau would arouse very little genuine opposition, while it is evident that the creation of a new department meets and will meet with considerable opposition. Enlargement of the present bureau seems more feasible and would probably be more effective than a new department.

THE DOMESTIC WATER FILTER.

It is, of course, the duty of municipal governments to keep the water supplies for their inhabitants pure and germ-free, but this is oftentimes not done. So that in many communities householders do, or should do, what they can to eliminate the ingestion infections from their drinking waters. Boiling will render such water innocuous so far as typhoid, cholera and the dysenteries are concerned; though such a water, if it has been muddy, is likely to remain so. But there is no great harm in the latter phenomenon. A real objection, however, is that boiled water is "flat" and insipid, because it is reduced merely to H_2O, all the gases which aerate a water and make it pleasant to drink, being eliminated in the boiling. Nevertheless, in times of epidemic, and where no guaranteed system of reservoir filtration exists, the water for domestic purposes must be either boiled or passed through domestic filters of assured efficacy.

Most domestic filters are by no means ideal contrivances, and the most nearly perfect of them are but making the best of a bad state of things, and one that ought not to obtain in civilization. The small sand, animal-charcoal, wire cloth, filter paper, sponge and cotton devices, such as are screwed in the faucet and let much water pass rapidly through them, are not filters at all, but only strainers, and give a false sense of security; at the very least their filling must be renewed daily. Indeed, many household filters are worse than nothing at all, affording foci for germ development and furnishing oftentimes water much richer in bacterial content than before the alleged filtration; they strain the water and by thus removing some of the cruder, but for the most part, harmless impurities (Mud, iron-rust from tap water and visible sediment) make it look purer and more attractive. But they are not preventive against the ingestion infections. Small filters that allow a good stream of water to pass through are never fine enough to arrest bacteria; besides, there may be leaky joints, cracked tubes and the like—defects that will give freer water. The general principle will hold that a filter which works rapidly in proportion to its size, is not safe, Small filters that are effective will allow water to pass through drop by drop; however, a series of such filter tubes connected together will give a fair stream. Besides, a home storage reservoir can always be attached; but this must be kept carefully covered, because filtered water more readily absorbs unpleasant gases to which it may be exposed.

The most effective domestic filters are made of unglazed porcelain or baked infusorial earth or sand stone; but through them also, germs may in the course of time pass into the filtered water. The best filters are germ-proof for only a limited period. So the knotty question remains, how they are to be regularly tested in such manner as to insure their being always effective. Of course the citizen able and ready to pay the bacteriologist for weekly inspections of his filters and of the water passing through them has an easy solution; but the man with the moderate income has got to forego this luxury.

Among the best domestic filters are the Chamberland-Pasteur (a hollow candle of unglazed porcelain) and the Bergefeld (a cylinder of compressed silicious earth). In either case the water enters the metal enclosing the filter and is forced under pressure through the porous medium, where it afterward escapes (through the glazed nozzle outlet in the Pasteur and through the bent tube at the top of the filter in the Bergefeld). To clean these filters, the cylinder or the candle is removed, scrubbed or brushed, sterilized by boiling or baking, and then replaced. If this is done at least once a week fairly safe filtration can be assured. All domestic filters should be capable of easy disjointing for cleansing, and of tight readjustment. Even then there should be occasional inspection by an expert to insure safety.

PARENTAL CARE.

The rapid advance of the idea that the State ought to care for the physical, as well as for the mental, growth of its children, draws attenion to the discussion brought out by a paper on

"Medical Inspection of Schools," at the latest meeting of the Massachusetts Association of Boards of Health. That here is a very wide field for enthusiastic, competent physicians who are fond of children and interested in hygiene and in education, cannot be doubted. Primarily, perhaps, the school medical inspector will concern himself with communicable diseases. But in Massachusetts at least he must now go further. There are very many remediable physical defects among school-children. Hearing, vision, speech, breathing, posture, growth, walking, sitting, standing, teeth, lungs, heart, skin, nervous system or circulation may any of them be at fault. Some of these defects may be very serious. Skilled medical observers alone can detect them; but shall the State also assume the task of seeing that they are remedied?

To many this form of "paternalism" has seemed to be the natural, even the necessary result. But Boston's experience proves that the parents of her children are not yet ready to yield their prerogative, or, to put it more accurately, still appreciate their duty as parents.

Thus the records show, that while 65% of children examined in 1911 were defective in some physical way, only 30% showed defects in the examination of the following year, 1912; 54% of those found to have defective nasal breathing last year are relieved this year; 50% of the cervical glands, 40% of the defective teeth, and 42% of the hypertrophied tonsils, have been relieved. These are not complete figures, but are from a large enough group to point the lesson. If the State will furnish the medical examination and will then notify the parents of the physical needs of their children, these parents will, to a very large degree, attend to the matter. They are surely as anxious as any official board can be, that their children grow up strong physically as well as mentally.

For this reason the School Committee of Brookline has taken the position that its duty is fulfilled when it has provided for such a "physical examination" as is required by Massachusetts law, to enable them to report to parents physical defects which may properly be referred by them to their own family physician or dentist for treatment. More extensive, paternalistic care of school-children, at the public expense, such as has been proposed in some Massachusetts communities, seems an unwarrantable and injudicious assumption of authority and responsibility that belong properly in the family.

DR. STRONG AND THE HARVARD SCHOOL OF TROPICAL MEDICINE.

THE recent establishment by Harvard University of a chair of tropical medicine essentially fulfils the long-cherished project for a Harvard School of Tropical Medicine. For the past thirty years there has been a growing realization of the medical and economic importance of tropical diseases, and the discoveries of American investigators have played no small part in the development of that knowledge. Experience has shown that temperate climates are by no means immune to occasional invasions of these diseases, and it is by the schools and teachers of such regions that their study is chiefly pursued. The new professorship at the Harvard Medical School, therefore, marks the definite and formal establishment of such a focus for special research and progress.

Dr. Richard Pearson Strong, who has been chosen as the first incumbent of this chair, is a man in every way qualified for his post. As an army surgeon, and as professor of tropical medicine at Manila, he has had abundant opportunity to become expert in the knowledge and teaching of his special subject; and in his investigations of pneumonic plague, during the epidemic of that disease in Manchuria in 1910-11, he has amply demonstrated not only his scientific ability, but the personal qualities of heroism and fortitude which should characterize the true physician. As chief of the new department at Harvard, Dr. Strong will have facility and occasion both for teaching and for further important research, and will be welcomed with the cordial good-will, encouragement, and support of the medical profession in Boston and New England.

MEDICAL NOTES.

A CENTENARIAN BRIDE.—Report from Los Ancense was issued to Mrs. Marcelina Elisalda, a widow of that city, who is alleged to be 105 years old. The intended groom is only 80. It is said that at the wedding the bride's granddaughter is to act as matron of honor.

A NEW MEDICAL KNIGHT.—In the recently published list of British New Year honors is the name of only one physician, Dr. R. W. Philip, upon whom the order of knighthood is conferred

in recognition of his work for the prevention of tuberculosis.

Gifts for University of California Hospital.—Report from Berkeley, Cal., on Jan. 5, states that gifts of $400,000 are now assured for the University of California, to build and equip new departments of the University Hospital in San Francisco.

British National Insurance Act.—It appears that the British Medical Association has been virtually worsted in its attempt to secure more favorable terms for physicians under the National Insurance Act or to prevent the measure from going into effect. Official statements in English medical journals have not yet reached this country, but press reports indicate that 10,000 physicians have already accepted service under the Act, and that 80% of the panels have been filled, the vacancies being chiefly in London and in Lancashire. This should be sufficient to ensure the operation of the scheme. As a result of the recommendations of the insurance comissioners, to whom were referred the protests and demands of the British Medical Association, the compensation allowed to a physician has been increased to 6s, 6d. for each patient; but even these terms are presumably unsatisfactory to the Association, and to all physicians except those who have accepted positions under the Act. On Jan. 18, the Council of the Association, by a vote of 115 to 35, released all physicians from any previous pledges not to serve under the Act. This apparently constitutes a virtual surrender to the government. The dissenting minority consisted almost wholly of London practitioners.

BOSTON AND NEW ENGLAND.

Fines for Illegal Food Sales.—Report from New Bedford, Mass., states that on Jan. 17 eighteen local storekeepers and restaurateurs were fined amounts aggregating $340 for the illegal sale of renovated butter and oleomargarine.

Before the Boston municipal court last week a milk-dealing corporation was fined $60 for offering for sale milk below the standard required by law.

Boston Hospital Concerts.—The concerts of the Boston Hospital Music Fund for February are announced as follows: On Feb. 2, at the Boston City Hospital; on Feb. 9, at the Roxbury Home for Children and Aged People; on Feb. 16, at the Children's Hospital, Boston; on Feb. 19, at the Baptist Home, Cambridgeport; and on Feb. 23, at the Mt. Pleasant Home, Roxbury.

Scarlet-Fever in Amherst.—Report from Amherst, Mass., states that on Jan. 20 a second student died of scarlet-fever, now epidemic at the Massachusetts Agricultural College. No new cases, however, have occurred.

Opium Seizures in Boston.—During the six months from July to December, inclusive, 1912, over $20,000 worth of opium has been confiscated in Boston by customs officials, chiefly from Chinese illegally offering it for sale.

The Fallacy of Food Fads.—On Friday, January 17, Dr. Francis G. Benedict, the director of the Carnegie Nutrition Laboratory, Boston, gave a lecture at the Massachusetts College of Pharmacy on "Food Fads and Their Frailties."

Boston Consumptives' Hospital.—In a report recently submitted by Drs. Edwin A. Locke and Timothy J. Murphy to the trustees of the Boston Consumptives' Hospital, it appears that the percentage of third-stage cases in the hospital has decreased from 97% in 1910 to 82% in 1912.

"The total number of persons treated from July 7, 1908, to Jan. 31, 1912, was 1767, of whom 1120 were males and 647 females. During that period, 36 were admitted to the hospital as tubercular patients, but after a careful diagnosis it was found they were free from the disease.

"On Jan. 31, 1912, there were 160 in the first stage, 414 in the second stage and 1186 in the third stage, five with miliary tuberculosis and two with tuberculosis non-pulmonary.

"The number of patients living on Jan. 31, 1912, was 524. Up to that time 835 had died. Of the 835 who died, 87.41% were of the third stage, 8.02% of the second stage, and 1.2% of the first stage."

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Jan. 18, 1913, is 277, against 268 the corresponding week last year, showing an increase of 9 deaths, and making the death-rate for the week 19.64. Of this number, 156 were males and 121 were females; 269 were white and 8 colored; 159 were born in the United States, 109 in foreign countries, and 9 unknown; 59 were of American parentage, 176 of foreign parentage, and 42 unknown. The number of cases and death from infectious diseases reported this week is as follows: Diphtheria, 31 cases and 2 deaths; scar-

latina, 46 cases and 5 deaths; typhoid fever, 7 cases and 4 deaths; measles, 127 cases and 1 death; tuberculosis, 46 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 37, whooping cough 0, heart disease 46, bronchitis 6. There were 19 deaths from violent causes. The number of children who died under one year was 37; the number under five years 53. The number of persons who died over sixty years of age was 89. The deaths in hospitals and public institutions were 106.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Jan. 21, 1913, are: Diphtheria, 36; scarlatina, 45; typhoid fever, 3; measles, 137; smallpox, 0; tuberculosis, 68.

The death-rate of the reported deaths for the week was 19.22.

NEW YORK.

HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.—At the annual meeting of the Hospital Saturday and Sunday Association, held on Jan. 13, Robert Olyphant was re-elected president and Dr. Walter F. Chappell was one of four members elected to the board of trustees. The treasurer reported that up to the present, $45,228 had been received from the annual collection for hospitals, a substantial increase over the amount received at the corresponding date last year.

INCREASED QUARANTINE APPROPRIATION.—In his annual report, just submitted to the legislature, Dr. O'Connell, Health Officer of the Port of New York, asks for an increase of $1,877,780 in the appropriation for quarantine this year. This is designed to embrace a virtual renewal of the plants on Hoffman and Swinburne Islands, which are stated to be antiquated and inadequate, and an increase in the working staff at Quarantine, including a chief medical officer, at a salary of $5,000; a first assistant bacteriologist, at $2,500; and a second assistant bacteriologist, at $1,500. Dr. O'Connell points out that more than 58½% of all the imports, 37¼% of the exports, and 71¼% of the immigrants to this country pass through the port of New York, and adds that, with the opening of the Panama Canal, not only will the commerce of the port be materially increased, but New York will be brought into much closer contact with ports in the Orient and South America, which periodically are plague spots and reservoirs of communicable disease. The prosperity of the whole State, he contends, would be radically affected by any serious damage done to the commerce of its principal city.

PUBLIC HEALTH MEETINGS.—An interesting feature of the recent Conference of the Health Officers of the State of New York, which was held this year in Syracuse, was a series of public meetings, throughout the week, under the joint auspices of the State Health Department and the local Bureau of Health. On Monday the meeting was for wage-earners, with addresses by Commissioner Williams, State Department of Labor, and P. E. Illman, Secretary of Syracuse Associated Charities; Tuesday, for women, with addresses by Prof. C. W. Hargitt, on "Heredity and Eugenics," and Dr. E. H. Muncie, on "Girlhood, Wifehood, Motherhood"; Wednesday, general meeting, with addresses by Dr. A. W. Freeman, assistant commissioner of health, state of Virginia, on "The Interest of the Public in Public Health," and Dr. W. S. Magill, director of State laboratories, on "The Importance of the Public Care of Food Supplies"; Thursday, for women, with an address, illustrated by stereopticon, by Dr. H. L. K. Shaw, consulting pediatrician to the State Department of Health, on "Saving Babies"; Friday, for men, physicians and students at Syracuse University Medical School, with an illustrated lecture on "The Value of Vital Statistics"; for men, with an address by Dr. M. Cole, director of division of publicity and education, State Department of Health, on "Manhood and Virility." Throughout the week the State hygiene exhibit was displayed in the assembly hall of the municipal building, and twice daily motion pictures illustrating various phases of public health activity were shown. In addition, talks on "Personal Hygiene" and "Carriers of Disease" were given in the public schools on three afternoons of the week.

POPULAR MEDICAL LECTURES.—Through the courtesy of the Board of Education, a series of popular medical lectures is being given weekly (January to March, inclusive) at the Morris High School, under the auspices of the Medical Society of the Borough of the Bronx. The general subject on Jan. 14 was "The Prevention of Disease," when Dr. F. W. Loughran gave an

illustrated lecture on "Insects as Carriers of Disease," and Dr. Thomas Darlington, the former president of the Health Department, spoke on "The Prevention of Contagious Diseases"; and there was an attendance of over 600. On Jan. 21 Dr. Abraham Jacobi spoke on "The Baby's First Week," and Dr. G. R. Pisek on "The Care of the Baby."

MEDICAL BEQUESTS.—Under the will of the late Miss Greer of New York $110,000 is left to charitable and scientific institutions upon the termination of certain trust funds. Of this amount the Mount Sinai Hospital is to receive $10,000 and the New York and Roosevelt Hospitals $5,000 each.

Current Literature.

NEW YORK MEDICAL JOURNAL.

JANUARY 11, 1913.

1. KOPLIK, H. *Spasm of the Pylorus and Congenital Pyloric Stenosis.*
2. ROSENBERGER, R. C., AND TERRELL, T. C. *Amebiasis and the Results of Tests for the Determination of Occult Blood in the Feces.*
3. KNAPP, W. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
4. MCCASKEY, G. W. *Pernicious Anemia.*
5. WOODRUFF, J. B. *Crotalin in the Treatment of Epilepsy and Nerve Disorders.*
6. MACY, M. S. *Instruction in Child Hygiene.*
7. SCHAEFFER, S. *Tuberculous Meningitis.*
8. VON OEFELE, F. *Vanadium Selenium in Cancer.*
9. *PRENDERGAST, J. F. *The Auscultatory Method of Blood-Pressure Readings.*
10. MALLORY, F. B. *The Infectious Lesions of Blood Vessels.*

9. Prendergast points out that the factor which has caused the greatest discussion in blood-pressure measurement has always been the taking of the diastolic pressure. To overcome this difficulty the writer advises the use of the auscultatory method, and he describes the auscultoscope, an instrument which he has devised for this purpose. This instrument is essentially a Bowles stethoscope with the bell fitted into an arm band. The band is applied below the cuff of the sphygmomanometer and with the diaphragm directly over the brachial artery as it divides. The auscultoscope takes the place of the finger on the radial pulse. The first sound heard is the systolic pressure, a clear thump or tap called the first phase. Then follows a murmur (second phase), then a clear sound (third phase), becoming dull (fourth phase), and then follows disappearance of all sound (fifth phase), which is the time to take the reading for the diastolic pressure. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 18, 1913.

1. CHENEY, W. F. *The Diagnosis of Gall-Stone Lodged in the Common Duct.*
2. SKILLERN, P. G., JR. *Anomalous Internal Carotid Artery and Its Clinical Significance in Operations on Tonsils.*
3. BOWES, L. M. *Persistent Hyaloid Artery.*
4. PRINCE, E. M. *Reports of Uterine Malformations.*
5. BARTLETT, C. J. *Family Pernicious Anemia. With Report of Cases.*
6. MARSHALL, G. M. *Correction of Nasal Deformities, Particularly External Lateral Deflections and Depressions With Obstructing Deviations of the Septum.*
7. PEDERSEN, V. C. *A Light-Carrier with Lens and a Rheostat for Urethroscopy.*
8. CURRIE, D. H., AND MCKEON, F. H. *History of a Typhoid Carrier.*
9. THOMAS, G. J. *An Apparatus for the Injection and Lavage of the Pelves of the Kidneys and the Ureters.*
10. *THOMAS, B. A. *The Results of Two Hundred Chromoureteroscopies Employing Indigocarmin as a Functional Kidney Test.*
11. *KROTOSZYNER, M., AND HARTMAN, G. W. *Practical Value of Blood-Cyroscopy for the Determination of Renal Function.*
12. * GERAGHTY, J. T. *A Study of the Accuracy of the Phenolsulphonephthalein Test for Renal Function.*
13. PUBLIC HEALTH, HOSPITAL AND BUDGET COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE. *Quarantine in the Maritime Cities of the United States.*
14. FLEXNER, S., CLARK, P. F., AND FRASER, F. R. *Epidemic Poliomyelitis. Fourteenth Note: Passive Human Carriage of the Virus of Poliomyelitis.*
15. LEWIS, P. A. *Double Infection with the Human and Bovine Types of Bacillus Tuberculosis.*

10. Thomas believes that chromo-ureteroscopy, based on the employment of indigocarmin, is the most valuable single test for renal sufficiency or insufficiency that we possess, because it is the most practical, affording the same diagnostic advantages as the functional tests dependent on bilateral synchronous ureteral catheterization, the technic and determination of which are tedious, complicated and consume much more time. Comparative observations of the onset and intensity of the color elimination have never failed to determine the functional sufficiency of the supposedly normal twin organ in view of operative intervention. It is of no value in movable kidney, in the presence of ureteral kink or hydronephrosis, pyelitis, essential hematuria, or early tuberculosis. It is of value in the differential diagnosis of hemorrhage and chronic interstitial nephritis from other types of the disease.

11. In the hands of a critical observer, cryoscopy of blood is a valuable test for the estimation of absolute or total renal function, especially when estimation of relative function through ureteral catheterization is not feasible.

12. Geraghty states that the phthalein test has now been employed in over 200 cases of nephritis of varying types, approximately 350 cases of urinary obstruction, mostly prostatic cases, in 150 cases of unilateral or bilateral disease in conjunction with ureteral catheterization, besides being used in over 1000 other cases as part of a routine examination. This added experience confirms entirely the earlier conclusions regarding the reliability and accuracy of the test. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

DECEMBER, 1912.

1. GIBBON, J. H. *Partial Gastrectomy in a Case of Multiple Carcinoma of the Stomach.*
2. *RUDOLF, R. D., AND COLE, C. E. C. *The Effects of Medicinal Doses of Aconite Upon the Pulse Rate.*
3. *HARTZELL, M. B. *Lupus Erythematosus and Raynaud's Disease.*

4. *ELSBERG, C. A. *Some Features of the Gross Anatomy of the Spinal Cord and Nerve Roots, and Their Bearing on the Symptomatology and Surgical Treatment of Spinal Disease.*
5. *BOGGS, T. R., AND GUTHRIE, C. G. *Bence-Jones' Proteinuria: A Report of Four Cases, with Some Chemical and Biological Notes.*
6. *SCHWARTZ, H. J., AND MCNEIL, A. *Further Experiences with the Complement-Fixation Test in the Diagnosis of Gonococcus Infections of the Genitourinary Tract.*
7. *MORGAN, W. G. *Indicanuria.*
8. MCCARTHY, D. J., AND KARSNER, H. T. *Adenocarcinoma of the Thyroid, with Metastasis to the Cervical Glands and Pituitary: A Contribution to the Pathology of Abnormal Fat Formation.*
9. NEWMARK, L. *Softening of the Spinal Cord in a Syphilitic After an Injection of Salvarsan.*
10. *STEIN, R. *Banti's Disease and Allied Conditions.*
11. WILLIAMS, T. A. *Cases of Juvenile Psychasthenia: To Illustrate Successful Treatment.*
12. CRUCE, J. M. *The Incidence of Purpura in the Course of Pulmonary Tuberculosis.*

2. Rudolf and Cole have tested the action of preparations of aconite to determine their action in clinical cases. Difficulty was encountered in obtaining preparations that were not entirely inert, and even active preparations deteriorated markedly in the course of three months. Even with solutions of aconitine toxic to animals no constant effects were obtained from medicinal doses corresponding to those given for the B. P. tincture, from which fact it is concluded that the use of the drug in such doses is based on fallacy. Its use in massive doses is not here considered.

3. Hartzell reports 13 cases of lupus erythematosus also presenting symptoms of Raynaud's disease, supporting the view that the two conditions are due to a common cause.

4. Elsberg's article on the surgical anatomy of the spinal cord and nerve roots, while it does not lend itself readily to abstract, deserves the close attention of surgeons operating on the lower portions of the cord.

5. Boggs and Guthrie report careful studies of Bence-Jones' proteinuria in four cases, three of multiple myeloma and one of metastatic carcinoma. Except in the last case, the recognition of the Bence-Jones' body in the urine antedated any suspicion of the nature of the malady, the palpable bone tumors appearing only at a later time.

6. Schwartz and McNeil publish findings with the complement fixation test in gonococcus infections to supplement those contained in a previous article. They conclude that a positive reaction denotes the presence or recent activity in the body of a focus of living gonococci, and that a negative reaction is of considerable value as negative evidence. The reaction is of especial service in women on account of the difficulty of bacteriological diagnosis.

7. Morgan discusses a series of 148 cases showing indicanuria, among whom vertigo, headache, languor, drowsiness, depression, inability to concentrate the mind, restless sleep, easy fatigue, etc., as well as flatulence and fetid breath were prevalent. He lays stress upon the observation that mental strain seemed to him to be a factor in the etiology of the indicanuria, which readily disappeared when a vacation had effected a restoration of nerve tone without other treatment. A diet with reduced protein and irrigation of the colon are recommended.

10. Stein's article is an excellent discussion of a subject upon which there has been much dispute among authorities and much uncertainty of understanding among clinicians and pathologists. The condition, according to Banti, is a primary splenomegaly characterized histologically by hyperplasia both of the reticulum and of the lymphoid stroma, accompanied by (1) anemia, (2) cirrhosis of the liver, identical with Laenec's interlobular fibrous form, always secondary to the splenomegaly, (3) ascites, (4) progressive hyposthenia, (5) not infrequently hemorrhages from the alimentary tract, sometimes fever. The first stage is marked by splenomegaly and anemia alone, the second by the appearance of enlargement of the liver, and the third by ascites. Banti recommends removal of the spleen in the first or second stages as curative of an otherwise hopeless condition. Stein accepts the disease as a definite clinical and pathological entity, opposing the view of Naunyn that it is merely a cirrhosis of the liver with early splenic enlargement, the theory that it is due to thrombophlebitis of the portal and splenic veins, the possibility of its relation to cases of late congenital syphilis, with similar manifestations, and its identity with other forms of primary splenomegaly. He recommends that cases clinically suggesting Banti's disease be tested by the Wassermann reaction with a provocative salvarsan injection, followed in positive cases by antiluetic treatment. Splenectomy has yielded excellent results, and in late cases might be combined with the Talma operation. [F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

DECEMBER, 1912.

1. *SMITHIES, F. *The Glycyltryptophan (Peptid) Splitting Agent in Human Saliva.*
2. *CONNER, L. A. *A Contribution to the Symptomatology of Thrombophlebitis in Typhoid.*
3. *JACQUE, J. Q., AND WOODGATT, R. T. *The Peptolytic Power of Gastric Juice and Saliva, with Special Reference to the Diagnosis.*
4. HESS, A. F. *The Relation of the Virulence of the Tubercle Bacillus to Its Persistence in the Circulation.*
5. GOODRIDGE, F. G., AND FOSTER, N. B. *The Relation of Uricolysis to Suboxidation.*
6. CUNNINGHAM, R. L. *The Scaphoid Scapula; A Normal Variation in Man.*
7. LUCAS, W. S. *Erythemia, or Polycythemia, with Chronic Cyanosis and Splenomegaly.*
8. COLE, H. N. *Verruca Peruviana and Its Comparative Study in Man and the Ape.*

1. Smithies reports on clinical experiments made by him in an effort to determine the existence of the peptid-splitting agent in saliva, the nature of this agent and the conditions under which it might be evidenced. He finds that reaction has little bearing on the power of saliva to split glycyltryptophan. Free tryptophan is occasionally met with in saliva from dirty or infected oral cavities. Conditions of health seem to affect the reaction of saliva with some influence on the peptid hydrolyzing power. Power to hydrolyze glycyltryptophan is lost if saliva is heated above 75° C.; the optimum temperature for cleavage is about 37° C. The indefinite nature of any enzyme renders its actual demonstration difficult. While the agent in saliva causing cleavage of glycyltryptophan has certain characteristics of an enzyme, the action of normal or pathologic oral micro-organisms or products of their growth is probably a considerable factor in such cleavage power.

2. Conner attempts to show that many of the obscure late interruptions of the normal course of typhoid fever—such as discomfort and stiffness in the limbs, tender toes, repeated chills, pulmonary and pleural symptoms—have a common underlying cause and that this cause is thrombophlebitis. This complication of typhoid is more frequent than generally supposed, occurring in 10% to 15% of all cases. Often its course is latent for many days and the thrombotic process is apt to be much more extensive and more widely disseminated than the local symptoms would suggest. Most of the pulmonary and pleural complications are due to embolism of branches of the pulmonary artery, which in turn is due to a complicating

venous thrombosis. The obscure, late, recurring chills are regularly associated with venous thrombosis and some of the chills are certainly related to the lodgment of pulmonary emboli. "Tender toes" may be due to irritation of the plantar nerves from periphlebitic inflammation in the sole of the foot or about the heel.

3. Jacque and Woodgatt made a clinical study of the peptolytic power of gastric juice and saliva, with special reference to the diagnosis of cancer. They find that saliva free from bacteria does not split glycyltryptophan and normal gastric juice free from blood, bile and bacteria has no peptolytic power. Peptolytic action exhibited by saliva is usually due to unfilterable agents (bacteria). In 88% of developed cases, carcinomatous stomach contents show a peptolytic power two to ten times the maximum seen in benign conditions. This is due only in part to bacteria, and the detection or measurement of peptolytic power in gastric juice is of considerable value in the diagnosis of cancer. In testing for this it is important to eliminate bacteria by passing the gastric juice through an effective filter, with subsequent aseptic precautions. [L. D. C.]

Surgery, Gynecology and Obstetrics.

January, 1913.

1. *Plummer, S. C. *Dystopic Kidney.*
2. Doederlein, T. O., and Herzog, M. *A New Type of Ectopic Gestation: Pregnancy in an Adenomyoma Uteri.*
3. Montgomery, E. E. *Hernia Through the Pelvic Outlet.*
4. Barrett, C. W. *Ovarian Tumors Complicating Pregnancy, Delivery and the Puerperium.*
5. Kretschmer, H. L. *Unilateral Kidney Hemorrhage, with Reference to So-Called Essential Hematuria.*
6. McGuire, E. R. *Successful Removal of Over Eleven Feet of Small Intestine.*
7. Murlin, J. R. *Some Observations on the Protein Metabolism of Normal Pregnancy and the Normal Puerperium.*
8. *Berry, J. M. *The Classification of Arthritis.*
9. Jones, W. C. *Etiology, Pathology and Treatment of Ovarian Cysts in Relation to Child-Bearing, with Special Reference to Hemorrhage into the Cysts.*
10. Wellington, J. R. *Meckel's Diverticulum; with Report of Four Cases.*
11. Keyes, E. L. *A Case of Carcinoma of the Bladder Controlled by the High Frequency Current.*
12. Forbes, A. M. *Clawfoot, and How to Relieve it.*
13. Galloway, H. P. H. *Observations on Tendon Transplantation Operations.*
14. Taussig, F. J. *The Technic of Tubal Sterilization.*
15. Hertzler, A. E. *Immediate Closure in Perineal Prostatectomy.*
16. Mason, J. M., and Mason, E. M. *A Tuberculous Cyst, Probably of Pancreatic Origin.*
17. Bartlett, W. *A Self-Inverting Suture for the Appendix Stump.*
18. Adair, F. L. *An Umbilical Cord Clamp.*

1. Plummer describes dystopic kidney as a congenitally misplaced kidney which has never reached its normal position. This is entirely different from movable or floating kidney, an acquired condition. The two conditions differ in anatomy, clinical manifestations and in indications for treatment. Dystopia occurs once in a thousand autopsies. According to Hill, the vascular supply is abnormal in these kidneys, because the kidney is abnormal, the supply adapting itself to the location of the kidney, and hence being not the cause but the effect of renal dystopia. The size is generally normal. The kidney often rests on the sacral promontory. Two or more arteries or veins are generally present, but all sorts of anomalies may be found. In contradistinction to the movable kidney, the congenitally misplaced organ is more commonly the left. The adrenals do not accompany it in its distopic location. Accompanying abnormalities of the genitals are common. The symptoms are those of a misplaced viscus with pressure predominating. No operative interference is indicated unless the symptoms are very severe. Reimplantation is the best procedure when possible. Nephrectomy is indicated only when it is absolutely certain that the other kidney is normal.

4. Barrett is convinced that in ovarian tumors complicating pregnancy, induced abortion, with its 100% fatal mortality is unjustifiable, in that it offers no corresponding improvement in the condition of the mother. Early removal of the tumor, as soon as possible after its discovery, gives a high percentage of good results in both mother and child. Tapping or puncture of the tumor has a high mortality and should not be done unless the operator is prepared immediately to follow it by abdominal section.

5. Kretschmer believes that unilateral renal hematuria does not always mean unilateral disease, as only one side may be bleeding at the time of the examination. Absence of albumin in casts does not exclude the presence of nephritic changes. Cystoscopy and ureteral catheterization must be employed in every case to determine definitely the renal origin of the blood. Cultures from each kidney should be taken to exclude any infectious cause.

8. Berry shows how confusing previous classifications of the arthritides have been, and proposes a simplified classification based entirely on etiologic and anatomic standpoints, as follows: I. Traumatic: (a) traumatic arthritis, (b) traumatic osteoarthritis. This to include simple synovitis and villous arthritis, bony spurs, Heberden's nodes and proliferative conditions. II. Infections: (a) infectious arthritis, (b) infectious osteoarthritis. III. Trophic: (a) trophic arthritis, (b) trophic osteoarthritis. This to include Charcot-joint, gout, syringomyelia, etc. He bases his arguments on the work of Nichols and Richardson and of Jones and Goldthwait. [E. H. R.]

Obituary.

CHARLES STURTEVANT, M.D.

Dr. Charles Sturtevant, who died on January 19th in Hyde Park, Mass., was born at Wrentham, Mass., on July 23, 1839. He received the degree of M.D. from the Harvard Medical School in 1862, and immediately became a Fellow of The Massachusetts Medical Society. On Sept. 5, 1863, he enlisted in the United States Navy, and was commissioned an assistant surgeon. Throughout the remainder of the Civil War he served in this capacity successively aboard the ships *Calypso*, *Tacoma*, *Britannia*, and *Lillian*, taking part in the blockade at Appalachicola, Tampa Bay, Cedar Keys, and Charlotte Harbor, Florida. While attached to the Gulf blockading squadron, he also participated in the battle of Fort Fisher. He resigned his commission on Jan. 18, 1866. In 1870 he settled at Hyde Park, and in the same year was made coroner for that town and for Milton, Mass. He resigned from the Massachusetts Medical Society in 1875, and became a member of the Massachusetts Homeopathic Medical So-

ciety and of the Boston District Medical Society. He was also a founder and the first president of the Hyde Park Medical Club. Since 1877 he had been medical examiner of Norfolk County He is survived by two daughters.

Miscellany.

THE SELF-SUPPORT OF TUBERCULATES.

IN an article in a recent issue of the *Survey*. Dr. Richard C. Cabot describes the value of work in the treatment of tuberculosis, especially as exemplified at the Arequipa Sanatorium in California, where by farming and the manufacture of pottery patients are able not only to pay for their care, but even sometimes to contribute to the support of their families or lay up funds for their own future.

"A sanatorium where patients can earn the cost of their maintenance, where they can sit at ease out of doors all the year round in one of the loveliest spots of beautiful California and make pottery so finished and exquisite that the demand for it exceeds the supply—that is what Dr. Philip King Brown has established at Arequipa, an hour by rail from San Francisco, near the little town of Fairfax, in Marin County.

"Patients do some work at other sanatoria. They work at Frimley in England, for instance, and at Endawood near Baltimore, but there they work for their health and earn nothing. They work at the Oakes Home in Denver, at Rutland, Mass., and at Trudeau in the Adirondacks, but what they earn in these hospitals does not pay their bills.

"What is done at Arequipa is done, so far as I know, nowhere else in the world.

"The great curse of tuberculosis to all but the rich (in whom it is relatively rare) is not the physical suffering it entails, but the serious expense of so long and wearing an illness stretching over months and years and the ravage which long idleness makes in the patient's character. Despondency pulls down some patients as seriously as the disease itself. Restlessness drives others into every sort of vice and folly which sanatoria endeavor in many ways to conceal and control. To conquer these evils through work, and still more through the encouragement given patients by the money which they earn, is Dr. Brown's great achievement."

BABYLONIAN MYTHICAL ETIOLOGY OF TOOTHACHE.

A RECENT item in the Philadelphia *Ledger* publishes a translation from a Babylonian cuneiform hieroglyph, deciphered by Dr. F. C. Eiselen of Chicago, giving the following mythical explanation of the cause of toothache:

"Anu had created the heavens, the heavens created the earth, the earth created the rivers, the rivers created the canals, the canals created the marshes, the marshes created the worm. Then came the worm to weep before Shash. Before Ena came her tears.

"'What wilt thout give me for my food; what wilt thou give me to destroy?' and the answer is: 'I will give thee dried bones and scented wood.'

"'What are these dry bones to me, and scented wood? Let me drink among the teeth, and set me on the gum that I may devour the blood of the teeth and of the their gums destroy their strength.'"

The worm, to whom the origin of evil has been ascribed in all ages, may perhaps be accepted as a prophetic allegorical symbol of the bacillus which causes dental caries.

ANCIENT FRENCH FOOD LAWS.

THE following edict,. relative to the punishment of purveyors of impure food products, is reported to have been discovered by a Parisian antiquary in the archives of Puy-de-Dome.

"Whosoever shall have sold watered milk, in his mouth shall be set a tube, and into the said tube shall be poured the watered milk till the doctor or barber there present shall assert that the culprit cannot swallow more without being put in danger of his days. Whosoever shall have sold butter containing turnips, stones, or any other foreign substance shall be seized and attached in very curious manner to our pillory of Pontet.

"Then the said butter shall be placed on his head till the sun shall have melted it com pletely, and in the meantime the children and the meaner folk of the village shall insult him with such outrageous epithets as shall please them—subject to the respect of God and his majesty. Whosoever shall have sold evil or rotten eggs shall be seized by the body and exposed in our pillory of Pontet. The bad eggs shall be given to the children of the villages, who shall by way of joyful diversion, throw them in the face of the culprit, so that all may be full of merriment and laughter."

Evidently pure food laws are not solely a product of this day and generation, though the mode of their administration has been somewhat modified with the lapse of time. Apparently such laws were needed also in England, for a British writer of the eighteenth century speaks as follows of food in London in his time:

"The bread I eat in London is a deleterious paste, mixed up with chalk, alum and bone-ashes, insiped to the taste and destructive to the constitution. As to the greens, the Londoners are so mad as to boil them with brass half-pence, in order to improve their color, and without this improvement in color they have no personal merit.

"Of fish I need say nothing in this hot weather, but that it comes 60, 70, four-score, and 100 miles by land carriage, a circumstance sufficient, without any comment, to turn a Dutchman's stomach. This is not the season for oysters, nevertheless, it may not be amiss to mention that the right Colchester are kept in slime pots, occasionally overflowed by the sea, and that the green color, so much admired by the voluptuaries of this metropolis, is occasioned by the vitriolic scum which rises on the surface of the stagnant and stinking water.

"The milk itself should not pass unanalyzed, the produce of faded cabbage leaves and sour draff, lowered with hot water, frothed with bruised snails, carried through the streets in open pails, exposed to overflowings from mud carts, spatterings from coach wheels. . . .

"There is also the tallowy rancid mass called butter manufacured with candle-grease and kitchen-stuff; and their fresh eggs imported from France and Scotland.

"If I would drink water, I must quaff the mawkish contents of an open aqueduct, exposed to all manner of defilement, or swallow that which comes from the River Thames, impregnated with all the filth of London and Westminster, such as the drugs, minerals and poisons used in mechanics and manufactures, enriched with the putrifying carcasses of beasts and men."

THE MONTENEGRINS AND MEDICINE.

Reports from the field of the Balkan war have given evidence from time to time of the great physical vigor, hardihood and courage of the Montenegrins. They are a sturdy pastoral people who have to a large extent retained a primitive simplicity in their manner of life. Though perhaps not to be commended from a civilized point of view, their customs seem to have developed a race of superb development and endurance. Particularly characteristic is their attitude towards medicine. As recently as 1889, after visiting Montenegro, Hulme Braman wrote of the people:

"They take very little care of their children and only the sound and the strong grow up. In after-life, too, they are extremely averse to sanitary precautions or medical treatment, and a sick Montenegrin is almost synonymous with a dead man. At least he at once gives himself up, and if he recovers looks upon it as a curious freak in nature's laws. . . . The few who reluctantly submit to surgery invariably refuse anesthetics and converse with their friends, smoking a cigarette while the surgeon is at work."

Correspondence.

EARLY ATTEMPTS AT TRANSFUSION.

Mr. Editor: Dr. Coues, in a recent issue of the Journal* brought to our attention what a French physician, Dr. Noir, considers an early attempt at transfusion of blood, antedating by two centuries the accepted period in which this procedure was first instituted as a method of cure.

This would be interesting if true, but it is most probably not true.

Dr. Noir got his supposed facts from reading a brilliant but flippant article by Emile Gebhardt, entitled "Moines et Papes." Gebhardt says that he in turn got his facts from Infessura—a chronicler of the times. I have looked up what Infessura really said about the matter. Infessura represents the Jewish physician as claiming that he wished to cure the dying Pope Innocent VIII by means of some young, human blood, but how this was to be used he failed to say. Infessura's words are as follows:

"Nam primo tres pueri decem annorum, e venis quorum Judaeus quidam medicus qui papam sanum reddi promiserat sanguinem extraxit, incontinenti mortui sunt. Dixerat nanique Judaeus illis se velle sanare pontificem, dummodo habere possit certam quantitatem sanguinis humani et quidem juvenis; quem propterea extrahi jussit a tribus pueris, quibus post flebetomiam unum ducatum quolibet donavit; et paulo post mertui sunt. Judaeus quidem aufugit, et papa sanatus non est."

Gregorovius in his "History of Rome," calls this story "a horrible fiction." Pastor in his "History of the Popes" says:

"If this account were true it would establish the fact that the Jews were in the habit of using human blood in medicine; but in the unprinted detailed despatches of the Mantuan agents I can find no mention of anything of the sort, nor yet in Valeri's reports. As these narrators minutely retail every drop of medicine that the Pope took, it is impossible that they should have omitted to mention a remedy so startling as this."

In looking up this matter, I find that Infessura had some personal grievance against this pope, and wrote some very caustic epigrams at his expense, and this fact ought not to be forgotten in weighing the value of his statements.

However, the meat of the matter is this,—that Infessura's story says nothing about transfusion, and the case might just as readily serve for an example of our modern vaccine therapy occurring four hundred years ago. Gregorovius, a Protestant, and a historian of the modern school, was probably right in setting down the whole story as a "horrible fiction."

Yours truly,

J. J. Mangan, M.D.

Lynn, Mass., Jan. 14, 1913.

* Vol. clxvii, No. 26. Dec. 26, 1912. p. 942.

TWO VALUABLE PAMPHLETS OF THE BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.

Boston, Jan. 9, 1913.

Mr. Editor: I wish to call your attention to the useful piece of educational work which has just been started by the Massachusetts State Board of Health.

Legally every case of tuberculosis in the State is required to be reported to the State Board of Health, and upon receipt of this information the State Board of Health sends to each tuberculous patient a copy of each of two pamphlets, "The Control of Tuberculosis" and "Directions for Living and Sleeping in the Open Air."

As the State Board of Health receives about 7000

reports of such cases, it can readily be seen that this is a very important piece of educational work. These two pamphlets have been very carefully prepared. The one on "The Control of Tuberculosis" by the Massachusetts State Board of Health, after a diligent study of all available literature on the subject, and "Directions for Living and Sleeping in the Open Air," a standard pamphlet prepared by the National Association for the Study and Prevention of Tuberculosis, and distributed throughout the United States. These two pamphlets are very simple and are not only useful to tuberculous patients, but to others who really desire to take steps to prevent themselves and their families from contracting the disease.

It seems to me this information should be given to the public as these pamphlets are available for distribution.

Yours very truly,

S. H. STONE, *Secretary.*

APPOINTMENT.

DR. HORACE PAINE STEVENS, of Cambridge, Mass., was appointed visiting surgeon to the Cambridge Hospital, on Jan. 15, 1913.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The spring meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, February 5, 1913, at 2 o'clock.

The following papers will be read and discussed:

1. "The Casetti Fratricide," John C. Fraser, M.D., Medical Examiner, of East Weymouth.
2. "A Fourfold Murder Case," George W. Dow, M.D., Medical Examiner, of Lawrence.
3. "An Interesting Case," Timothy Leary, M.D., Medical Examiner, of Boston.

OLIVER H. HOWE, M.D., *Recording Secretary.*

Cohasset, January 27, 1913.

RECENT DEATHS.

DR. JOHN WINSLOW CHASE, who died on Jan. 18 in Dedham, Mass., was born at Epping, N. H., in 1840. Throughout the Civil War he served in the Union Army as a hospital steward, and in 1867 obtained the degree of M.D. from Maine Medical School. He immediately settled in Dedham, where he continued active in the practice of his profession until a short time before his death. He was for many years county physician of Norfolk County, town physician of Dedham, and a member of the local board of health. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow and by two daughters.

DR. REUBEN F. DEARBORN, of Lynn, Mass., who died on Jan. 19, in London, Ont., was born at Andover, N. H., in 1850. He graduated from Dartmouth College in 1870, and in 1874 received the degree of M.D. from the College of Physicians and Surgeons of New York. He practised his profession successively in New York, Detroit, Boston, and since 1892 at Lynn. He is survived by one daughter and by one son.

DR. FRANK W. MEAD, of Washington, D. C., who died of pneumonia on Jan. 18 at Vineyard Haven, Mass., was born in 1838. He entered the government service in 1878, and was surgeon-in-charge of the United States Marine Hospital at Vineyard Haven.

DR. ERNEST PALMER, who died last week at Brooklyn, N. Y., was born in New York City in 1850. He received the degree of M.D. in 1879, from the New York College of Physicians and Surgeons. In 1894 he was appointed to the surgical staff of the Long Island College Hospital, a position which he retained until his death. He was also consulting surgeon to the King's County Hospital, to St. John's Hospital, and to the Jewish Hospital, of Brooklyn. He was a member of the King's County Medical Society, of the Brooklyn Pathological Society, and of the Associated Physicians of Long Island. He is survived by his widow and by one daughter.

DR. CLINTON STEVENSON, who died last week in New York City, was born in 1865. He was a graduate of the New York College of Physicians and Surgeons, and since 1902 had been a member of the staff of St. John's Hospital in Long Island City. He was surgeon major of the Eighth Coast Artillery, and a medical inspector in the New York department of health. He is survived by his widow, by one daughter, and by two sons.

DR. KERAN O'BRIEN of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1901, died on January 7. Dr. O'Brien was for a time physician on the school-ship Newport.

DR. ROBERT BRADLEY WELTON, who died in Brooklyn, N. Y., on Jan. 8, was born in 1843, and received the degree of M.D. from the Harvard Medical School in 1868. He had practised his profession in Brooklyn since 1874. He was a member of the American Medical Association, of the King's County Medical Society, and of the Brooklyn Medical Society. He is survived by his widow and by three sons.

BOOKS AND PAMPHLETS RECEIVED.

The Economic and Sociological Value to the State of Preventive Medicine by B. F. Rea, Jr., M.D. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 18, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	16	2
Chicago	—	—	Waltham	5	—
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	6	1
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	7	2
Buffalo	—	—	North Adams	8	3
Pittsburgh	—	—	Northampton	4	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	4	1
Washington	—	—	Leominster	4	2
Providence	—	—	Attleboro	5	—
Boston	277	53	Westfield	8	3
Worcester	64	20	Peabody	—	—
Fall River	35	18	Melrose	9	1
Lowell	39	7	Woburn	4	1
Cambridge	26	4	Newburyport	5	1
New Bedford	40	19	Gardner	4	—
Lynn	18	4	Marlboro	4	—
Springfield	29	4	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	19	3	Adams	2	1
Holyoke	24	7	Framingham	—	—
Brockton	12	—	Weymouth	—	—
Malden	10	2	Watertown	2	1
Haverhill	9	1	Southbridge	2	—
Salem	8	1	Plymouth	—	—
Newton	15	—	Webster	3	—
Fitchburg	12	3	Methuen	—	—
Taunton	15	4	Wakefield	—	—
Everett	7	3	Arlington	1	—
Quincy	—	—	Greenfield	3	—
Chelsea	19	2	Winthrop	1	—

Address.

ON SOME FUNCTIONS OF THE FREE DISPENSARY.*

BY W. S. THAYER, M.D., HON. F.R.C.P.L., BALTIMORE, MD.

TWENTY-EIGHT years ago, I came for the first time to this city—a rather thoughtless, aimless boy—to study with one who is well known to most of you here today. After a year under the guidance of this man, I left, a serious-minded youth with ideals and aspirations and ambitions and enthusiasm.

Anything that I may have accomplished in life, anything that I may accomplish in the years that remain before me, I owe and I shall owe to my dear old master whose wisdom, whose learning, whose lively and youthful interest in all that is beautiful and good, whose optimism, whose charity above all, have been to me a lasting and a guiding inspiration.

To return to the town so closely associated with the memories of this period can but be to me a happy event.

It is also good to visit this institution which has, in these years, developed in so creditable and distinguished a manner.

There could be no surer evidence of the wisdom which guides the University than the construction of a dispensary for out-patients of such a character that advice and treatment of the invalid may properly be combined with the study and investigation of disease.

To one, who, for over twenty-five years has been more or less closely connected with work in out-patient departments of large hospitals, it has often seemed that the public at large, as well as much of the medical public, was strangely ignorant of the possibilities of the free dispensary. This is due, in great part, to the existence of so many ill-equipped and ill-managed institutions, —largely to the fact that even in the best-equipped dispensaries the authorities have failed to realize the true importance of the opportunities and responsibilities which lie before them.

A few days ago I heard Richard Cabot say that the out-patient department is the most important part of a hospital. I agree with him most sincerely. It is that part of a hospital which reaches, or should reach most directly, the general public,—in its function of giving advice and offering care to the sick, as well as its larger function of instructing in methods of life and prophylaxis against disease. It is the one part of a hospital in which students of medicine are able to study those disorders, physical and mental, with which they are most likely to meet in general practice.

It should be an institution so equipped and conducted as to be a central point to which the physician practicing among the poor should be able to resort for consultation and advice with regard to difficult and complicated cases, and it should be the especial care of such an institution to maintain cordial and intimate relations with the physicians in its neighborhood.

These, I take it, are some of the main functions of an out-patient department. Now such functions as these can only be maintained by a dispensary which is in close connection with a well equipped institution of learning. It must, in the first place, have a considerable staff of senior and junior physicians; of senior physicians of distinction and reliability who, if not regularly in attendance, should be there at stated intervals for purposes of consultation and advice; and of junior physicians who are active and well equipped men, many of whom may be practicing physicians. It should further have student assistants for the purpose of history taking and record keeping. It should be well equipped with modern laboratories, — bacteriological, chemical, physical, if one may say so, with apparatus for x-ray examinations, for recording cardiac action and respiration, and with other instruments of precision. It should, if possible, have, in addition, a department of physiotherapy in which massage, electrical and hydrotherapeutical treatments may be given.

Few dispensaries are equipped with all these departments, especially with these latter departments, but their desirability, none will, I think, deny.

Now to such dispensaries or to the numerous good dispensaries in this country which aim at if they do not reach so great a degree of perfection,—to these dispensaries, what manner of people come? To what sort of individual are these advantages offered? The answer is simple. People come to a dispensary who are ill and in trouble, to seek advice and treatment. These people are of various classes. In the first place, the very poor, who ought not to be expected to pay for the services of a physician,—people so poor that no physician would wish to take their money. This is a large class which often contains, temporarily, individuals who, from outward appearances, might seem to be relatively well-to-do. We are a rather improvident people, and there are many of us who live very close to our incomes. We ought not to do this, it is true, but we do, and when the unexpected trouble comes, the free dispensary, disagreeable though it be, is our one resort. The occasional use of dispensaries by such patients is far more frequent than is generally imagined, and the motives which induce these individuals to make use of a public charity are commonly most creditable. Many a man in trouble sends his family, or goes himself to the free dispensary, although it may be most distasteful to him, rather than seek the services of a busy physician for which he knows he cannot pay.

But is such service to be regarded as wholly free? Do these people pay nothing in return for

* Address read on the occasion of the laying of the cornerstone of the new Medical College Dispensary Building at the University of Syracuse, December 14, 1912.

the attention which they receive? In some ill-conducted out-patient departments where no records are kept, where few examinations are made, where the patient, after a few questions, is handed a prescription and passed on,—the service, such as it is, may truly be regarded as entirely free. Such dispensaries are not a benefit to the community in which they exist.

In the properly conducted out-patient department, however, the advice and treatment given is far from free; the patient pays for the services which the dispensary can give him by allowing himself to be used as the subject of lectures and demonstrations to students and physicians. This, one may say, is not much. No, it is not a great hardship. But in another sense it means a great deal. It is often, indeed, usually, *very time taking*, and there are very few of the poor and ignorant who do not prefer to avoid the waste of time and the lengthy examination by seeking the services of a private physician when they can afford it.

Secondly, there are individuals able and willing to pay a small fee, who yet feel that the physicians in the regions in which they live do not give them the time, the care or the attention that is given them in the dispensary. They believe that the services which they obtain at the dispensary are more valuable than those for which they can afford to pay, and they are willing to offer themselves as the subjects of study or demonstration or lecture, and to sacrifice the necessary time for certain advantages which they conceive the dispensary offers, advantages otherwise out of their reach.

Thirdly, to the better dispensaries, especially to those connected with hospitals or universities, where well equipped men are in attendance, or where men of real eminence are to be found on special days,—it is not uncommon for physicians who practice among poor people of moderate means to bring their patient for assistance in diagnosis.

During much of the time that Dr. Osler was in Baltimore, he gave, three times a week, what he called diagnostic clinics before third-year students. In a large room, in the middle of the dispensary, adjoining the examining rooms, he saw several patients each day, before the class. Often these patients presented examples of the ordinary minor ailments, but if any case of especial interest was met with by the physician in attendance, it was set aside for Dr. Osler's clinic. Moreover, not infrequently, physicians practising among people of moderate means brought to this clinic cases of an unusual character. These patients, by their willingness to offer themselves as subjects for demonstration, obtained the advantages of a consultation with Dr. Osler which otherwise would have been impossible.

The opportunity afforded by a dispensary of the proper sort for occasional consultations of this nature is most valuable to the public, to the physician, and to the dispensary itself.

It is impossible for the busy consultant to see the poor in any other way, the advantages, therefore, to these people are obvious. The conscientious practitioner among the poor, who meets in his practice, an unusual instance of disease is well aware that a consultation with a colleague in the same position as himself, for which the patient can afford to pay, the consultation which under ordinary circumstances is sufficient, will in such a case, be of no real benefit. That under such circumstances as these, it is possible to obtain the advice of men with special experience and special clinical advantages, is a great blessing. The dispensary is equally benefited by the opportunity to study unusual and exceptional examples of disease.

The information to be gained from a variety of physical, chemical, bacteriological and serological methods of investigation of disease has become of great importance in late years. The methods of examination are, however, so complicated, so time-taking, and demand apparatus so expensive that the ordinary practitioner cannot possibly carry them out himself. Private laboratories and special students are required to pursue this work. But the expense associated with such examinations places this assistance beyond the reach of a large proportion of the public. The establishment of well-equipped laboratories in our departments of public health is, it is true, offering to the practitioner more and more opportunity to obtain information which is now, in many ways, really necessary.

But there is information which even these laboratories cannot afford, information which can only be obtained for a certain proportion of patients, by resorting to private laboratories or to a thoroughly equipped institution of learning.

It is, it seems to me, eminently fitting that a dispensary such as this which you are founding today should be able to offer such assistance to practicing physicians in connection with interesting and puzzling examples of disease, in return for the opportunity of studying and demonstrating the case. This, I have long felt to be an important function of a dispensary, unrecognized by many.

The dangers that the advantages offered by such institutions will be abused by individuals who are capable of employing their own physicians, and that real injustice may be done to the practitioner who depends for support upon small fees, are very slight. Of the properly conducted dispensary there is exceedingly little abuse. Where each patient is studied, where thorough examinations are made, where time is taken, where instruction is given, the loss of time which the dispensary visit involves is so great that only those patients come who cannot afford to pay for the services of a physician, excepting always a few intelligent individuals who come because they feel that they cannot obtain equally good attention at home.

Some of these patients there always are,—patients who while they can pay the fees demanded

by the doctors in their neighborhoods, yet feel that the services which they obtain from these men are inferior in value to those which the dispensary offers.

Is this a dispensary abuse? I think not. It is undeniable that in many of our cities, the class of individuals who practice among the very poor is not such as to inspire confidence in the intelligent man. Why not say so openly and frankly? We all know it. But this not always so. In the poorer sections of the city there are often a certain number of active young men who must begin life, at least, in a simple manner. Now if these young men are really well fitted, if they are earnest students and are able to make examinations and employ diagnostic methods such as are employed in dispensaries, the public in their neighborhood finds it out with astonishing rapidity and is more than glad to pay for their advice and attention, and avoid the necessity of going to a dispensary.

And one of the great duties of the dispensary is in equipping just such men as these, in offering the bright young graduate the opportunity to gain experience and training in return for the services which he gives as an assistant.

All large dispensaries need a considerable corps of assistants—active, intelligent men—many of whom must be young practitioners, and if the poor young man at the outset of his practice remembers that it is his duty to the public as well as to himself to attempt to remain a student as well as a practitioner, if he eagerly seeks and takes advantage of the opportunities to assist or study in properly conducted out-patient departments, he will soon find, in the majority of instances, that there is little difficulty in building up a practice among the poor who recognize quickly the man who uses dispensary methods.

Some years ago, I was appointed chairman of a committee to inquire into the question of Dispensary Abuse in the City of Baltimore. In order to obtain some idea as to the feeling of the profession on the subject, a number of letters were sent to men practicing among what might be called the dispensary class in different parts of the city, a few to physicians associated directly with large dispensaries, and a few to non-medical men known for their general interest in the subject, asking what, in their opinion, constituted the main abuse of dispensaries. The answers were most interesting. Scarcely two men agreed in their opinion as to what the main dispensary abuses were. Many of the answers, —I should say, most,—dealt with practices entirely foreign to any well-conducted university dispensary. Upon consideration of all these communications, it seemed to me that the abuses associated with the dispensaries connected with the several honestly conducted institutions of learning, were so slight as hardly to be worth consideration.

In one of these letters, an eminent physician who has given a great deal of attention to social problems, a man who is in the habit of writing with considerable vigor, says: "My views on dispensary abuse have never been winnowed and tried out by careful investigation of the subject, but so far I think the chief dispensary abuses are:

(1) The abuse of patients by careless doctors and externes.

(2) The abuse of opportunities by careless doctors and externes.

That any great harm comes from the free treatment of the folk who can pay, I doubt. The physicians to whom they would otherwise go are usually 'N.G.', and from the point of view:

(1) Of health.
(2) Of character.
(3) Of instruction in hygiene.

I believe the patient gets more by coming to a free dispensary even when he can pay. I doubt if his character suffers in the process, and as for the loss of money to the doctors, I do not regret it. I think it more than made good, from the point of view of the public good, which is the only point of view that we can take by the physical, psychical and educational good done by the dispensary, even for rich patients. I do not believe you can surely weed out the rich, either, by any spotting process."

I agree largely with the opinions expressed by my friend and I am convinced that the blessings offered to all branches of a community by a well ordered dispensary are enormous, that the abuses to which it may be subject, are trivial, that there is really no reason to believe that a properly conducted out-patient department is anything but an assistance to the right-minded physician who is practicing among the poor.

In any dispensary, however, constant care and attention is needed as to the personnel of the staff and as to the character of the work done. Especially important is the establishment of a social service department. The physician in private practice or the consultant knows well that the patient who demands most attention and who requires most time is not he who suffers from a grave or fatal disease,—it is the individual with complaints often termed trivial which depend upon the manner and condition of his life and surroundings. By allowing such a patient to tell his story, in seeking out the indirect cause of his unhappiness, lies the only hope of alleviating his suffering. How difficult the discovery often is! How simple the remedy! What tragedies may result if the conditions remain unchanged! And the patients with these secret sorrows, with these so-called trivial complaints, come to the dispensary and not to the hospital.

It is impossible in many instances, for the physician alone to reach the root of the matter. This is, however, admirably done by an efficient social service department—with visitors to look into home conditions,—to acquire the confidence of the patient—to complement the work of the physician.

The combination of medical research and in-

struction with the care of the sick in a free dispensary is important from many standpoints. Its advantages for the student and physician are self evident. Its advantages for the patient are, however, not always understood by the public. They are, nevertheless, very great—as great in the out-patient department as in the wards of the hospital. The presence of students of medicine, undergraduates, or post-graduates, is the greatest stimulus to the careful investigation of the individual case, and to study and research in general. The student as an assistant in the wards and in the out-patient department of a hospital is absolutely invaluable. No hospital which closes its wards to students can ever hope to compete in the quality of its work or in the care given to the patients with institutions in which ward instruction is given. I have known and served in hospitals of both classes, and I know whereof I speak. The same is true to even a greater extent in out-patient departments.

There is one point, however, which has not sufficiently been emphasized, and that is the therapeutic value to the patient himself of medical instruction. I rarely make a ward visit with the students or give a public clinic without the consciousness that what I am saying to the class is of material value to many of the patients. It is almost invariably true that advice given in public and explained at the same time to the student has considerably more force than when it is given directly to the patient. The suspicious, nervous invalid rarely doubts the sincerity of advice given thus in the presence of others, and many a time I have seen the patient induced to the urgent operation only after hearing the *pros* and *cons* considerately discussed before the class.

Especially valuable, often, is the combination of instruction with treatment of patients effected with various nervous diseases. One of the most fascinating and inspiring clinics that I know is the out-patient consulting hour of Professor Dejerine at the Salpetrière in Paris. Dejerine here combines his questions and advice to the patient with explanations, confidences and digressions directed more particularly to his audience, in a manner so informal and so sympathetic that one feels immediately that the significance of his words to the patients is appreciably greater than if the advice were given in private. And it is interesting to see how true a bond of sympathy is formed between these sufferers and the earnest men in the audience, with whom, perhaps, not a word is exchanged. The patient is interested in the fact that others are interested in her case. She is cheered, not only by the helpful words of the doctor, but by the sympathetic glances of the onlookers, and she is reassured by the remarks and comments made to this audience, in a confidential and intimate manner, in the discussion of her case. No one can doubt that in such a clinic as this the combination of instruction with treatment is beneficial to all concerned.

The prime essentials for an efficient dispensary are that it be a part of, or intimately associated with, an institution of learning, and that it should possess a proper equipment for the study and treatment of disease. It is with peculiar satisfaction that I learn that one floor of this building, the cornerstone of which has been laid today, is to be devoted to laboratories. Twenty-five years ago, what laboratory work was necessary in a dispensary, could be done by the clinical assistants themselves. Today, the story is very different, and it is difficult to imagine a dispensary, not associated with an institution of learning, which could afford the necessary equipment or guarantee a staff of a character suitable to carry on the scientific work of the institution.

What a wonderful field of study it is—the study of disease, offering as it does today, problems which demand excursions into all of the natural sciences, problems which offer to the mind of the student the fascination and charm which are attached to any scientific investigation, quickened by the added consciousness of the ends in view, the relief of human suffering, the increase of human efficiency, the prolongation of human life, the betterment of man!

Every hospital which opens its doors to the student of medicine, every university which gives of its resources material and moral, for the establishment of institutions such as that of which today you are laying the cornerstone, is contributing to these great ends.

Of the specific value of a well equipped university dispensary to the public, to the student, to the physician, to the community, I have already spoken, and coming from an institution which stands sorely in need of a building just such as that which you are now erecting, I offer you, not without a touch of, may I say, friendly envy, my cordial congratulations.

Original Articles.

THE CLOSURE OF OBSTINATE PERINEAL FISTULAE FOLLOWING OPERATION FOR STRICTURE OF URETHRA. THE PREVENTION OF THESE FISTULAE.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

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As a general rule, it is essential to discover and remove the cause in treating lesions of a surgical nature, and unless that is done the effort will fail. This is particularly true of cases of obstinate perineal fistulae secondary to lesions of the prostate gland and urethra. Except in the rare cases where tuberculosis and carcinoma are present, the persisting cause is a mechanical one. Like any fluid, urine will follow the course

of least resistance. Therefore, if there exists a urethra with incomplete wall, accompanied by more or less distal obstruction, one cannot expect the urine to follow the natural channel. Hence, many perineal wounds are either very slow to heal or may remain open indefinitely.

In trying to ascertain the causes of these obstinate and troublesome fistulae, let us consider some of the types of lesions which are followed by this complication.

Group 1. *Cases of Urinary Extravasation.* These are generally the result of stricture. There is a varying degree of local infiltration, the parts become infected, and the less resistant tissues become necrotic. Meanwhile, the patient may become very toxic and his condition critical unless incisions are made or openings in the skin appear spontaneously. If resolution should follow, a fistula would result and persist indefinitely, because the underlying cause (stricture) still persists. If, however, such a case of extravasation were operated upon simply by free incisions and nothing further done to relieve the stricture, owing perhaps to the serious toxic condition, there would be the same chance of a chronic fistula as though the opening were spontaneous.

It frequently happens in this class of cases, owing to the distortion of parts and the sloughing, that no guide can be passed into the bladder and that in the effort to find the urethra it is extensively injured and perhaps destroyed for some distance or a considerable portion of it sidetracked by the catheter, if passed through the penile urethra into the bladder. Finally, the catheter may have been inserted into the bladder only through the perineum and prostatic urethra. These circumstances tend to establish obstinate perineal drainage.

In dealing with these cases of urinary extravasation, the first indication is the establishment of free drainage from the tissues, particularly if the condition is critical, but, ultimately, of course, the stricture, must be incised. This should be done at the first operation if the condition of the patient warrants, provided the operation is not too prolonged and the effort not attended with too great difficulty or unnecessary injury to the urethra. The bladder should be drained in these cases, as in all others, by a catheter which includes the whole urethra, and the opening in the perineum should serve to drain only the adjacent tissues.

Group 2. *Fistulae after Prostatectomy by the Perineal Route.* After prostatectomy by the perineal route, chronic and sometimes permanent fistulae are not uncommon. In view of the frequent extensive destruction of the membranous and prostatic urethra and the neglect to keep open the remaining portion of the anterior urethra, it is surprising that the urine finds its way into the penile urethra as well as it does. In some cases careful operators are able to remove the gland without material injury to the urethra but, as a rule, it is considerably torn. Many resort solely to perineal drainage and occasionally insert considerable packing into the wound and neglect the distal portion of the urethra which, of course, remains collapsed. After these drains are removed, the greater portion of the urine will escape through the wound, but will decrease gradually as the wound tends to close and the distal opening in the urethra remains patent. If granulations tend to obstruct the latter they offer resistance, and a fistula may persist.

If, on the other hand, the operation be performed with care so as to cause a minimum of urethral injury, and a catheter for bladder drainage be placed so as to include the whole urethra, and a light gauze packing be left in the wound and removed as soon as hemorrhage is arrested, then the conditions are most favorable for early and permanent wound closure. The soft parts close around the catheter, where the urethra may be deficient, and the approximated surfaces become glued together by granulation tissue. In many cases the wound may be nearly closed with large, mass, silkworm gut sutures and, by means of seepage for 36 to 48 hours, all exudate and fluids be promptly removed and thereby absorption prevented. The patient may be propped up in bed during this period. If there is no contra-indication, the catheter should remain in place at least one week.

Group 3. *Fistulae Following Operation for Stricture.* This complication not infrequently follows external urethrotomy, depending upon various circumstances. If we have to deal with a passable stricture, it is possible to obtain relief by intra-urethral methods, such as gradual dilation or internal urethrotomy, irrespective of whether the stricture is situated in the penile or membranous urethra. Internal urethrotomy is the accepted method of treating penile strictures, but is generally condemned for deep strictures because of the danger of infecting the perineal tissues, and this complication has occasionally proved serious. As a rule, however, internal treatment of the urethra is not followed by urinary extravasation or sepsis, even when the crude and now discarded method of divulsion of deep strictures was used. The usual method of treating deep passable strictures which do not yield to gradual dilatation is by external urethrotomy, and this is the only way if no guide can be passed. The resulting injury to the urethra will depend upon the care of the operator and upon the presence or absence of a guide and upon the subsequent tearing in introducing the catheter for drainage. Most surgeons insert the catheter through the whole urethra, but the wound variation is considerable as to the extent of incision or laceration of the urethra and perineal tissues and the amount of subsequent packing or closure of these tissues. Some remove the catheter very early and some keep the wound open with repeated, extensive packing. If a guide has been passed, the only

object of a perineal incision is to guard against infection; hence, all that is required is a small incision in the perineum down to the urethra, performed after the stricture has been cut with the Maisonneuve instrument and sounds passed to the desired size; if an external urethrotomy is done without a guide the perineal wound can be all but closed, and thus allow ample drainage. Later the wound could be opened easily if indicated. Hence, freshly incised tissues are approximated and heal quickly when held in apposition with mass sutures of silkworm gut, which should not be removed for at least a week. The catheter should remain this length of time also and repeatedly when removed there is little or no escape of urine through the nearly healed perineal wound in uncomplicated cases. The importance of leaving a minimum opening for drainage in clean cases and the proper retention of the catheter are essential for rapid and permanent healing. This is further demonstrated by the fact that success in plastic operations for cure of hypospadias depends upon wound closure and catheter retention until healed. Their tendency to fistula formation is well known by those who operate upon these obstinate cases. Prevention of recurrence of stricture will depend upon the faithfulness of the patient in attending to subsequent passing of sounds for an indefinite period.

So much for factors which tend to produce perineal fistulae and for measures for prevention of the same.

Method of Relieving These Cases. As already mentioned, the fistula persists for mechanical reasons, the urine following the path of least resistance. If there is resistance to the stream anywhere in the urethra distal to the opening which leads to the perineum, the fistula will tend to persist and the granulations fail to close it. Hence, all distal strictures must be relieved by full sound dilatation. Sometimes the introduction of a catheter for permanent drainage of bladder for a couple of weeks may avail. If these simple measures fail, some sort of perineal operation must be resorted to. These fistulae have often been opened down to the urethra and curetted, caustics applied, and other means resorted to, only to be followed by failure.

Technic. Each case may present some special feature, but the following general technic has never failed of speedy relief in the hands of the writer.

The operation should be deferred until all acute signs have subsided and only the fistulous tract remains. A guide should be passed through the whole urethra into the bladder. If there is no tight stricture, a moderate sized steel sound (French 24) should be selected so as to distend the urethra at the fistulous opening; otherwise, a small guide should be used. Any stricture in the penile urethra should next be divided with the Otis or Maisonneuve instrument. Any narrowing at or near the fistulous opening, which is usually in the membranous urethra, should next be divided internally and preferably with the Maisonneuve instrument. Then a steel sound, French 24, is passed and the patient put in the lithotomy position.

If no guide can be passed into the bladder, one should be introduced to the point of stricture, and the patient put in the above position. Next, the direction and length of the fistulous tract should be determined with a small probe. An oval incision is then made in the perineum around the opening of the fistula, leaving a margin of skin, one-third of an inch wide, around it. If needed, a little more room may be gained by making an incision in the antero-posterior direction at either end of the oval one, but this is not



I. Fistulous tract dissected down to the urethra.
II. Tract excised and ligated at the urethra. Sutures placed.
III. Diagrammatic side-view showing tract dissected and ligated at the urethra which is distended with a steel sound.

often the case. The next step is the careful dissection of the tract so as to excise it without opening it until the urethra is reached. Its wall should be kept reasonably thin, but should contain ample tissue so as not to break when the necessary traction is used. The dissecting will be chiefly through scar tissue. Frequent use of the probe will indicate the direction of the fistula or some sort of a guide may be left in the tract during the dissection. Stay sutures or some instrument should be used during the dissection for traction, and the dissection is nearly bloodless. The tract will vary from one to two inches in length. When the urethra has been reached a ligature of No. 1 chromicized catgut should be tied around the base of the tract, which is practically a tube, and the distal portion excised. Where it has been possible to insert a soft rubber catheter for permanent drainage prior to dissecting out the tract, this proves to be the best technic, because the catheter is as good a guide as the steel sound and, being already in position, there is no subsequent danger of injury after the parts have been dissected. Finally, the cut edges of the stump (tract) may

be sutured with plain catgut. Then the walls of the incision are held in approximation with three or four interrupted, buried sutures of plain catgut. The edges of the skin, including some of the deeper tissues, are sutured with silkworm gut or silver wire *en masse* so as to close the perineal wound. Owing to the fact that the dissection has been through scar tissue, there is but little chance for infection or infiltration. In thin subjects, where the fistulous tract is short, perineal drainage is not indicated but, as a precaution in certain cases, a very narrow strip of rubber dam may be inserted for twenty-four hours. The silkworm gut sutures should not be removed for about ten days. The after-treatment does not differ from that of any patient wearing a catheter for bladder drainage. The perineal wound must be inspected daily and kept clean by lotions, wet dressings, or a little boric ointment, as each case may require. The catheter must be kept clean and in place for about ten days. At the end of this time the wound should be about healed, but, if a few drops of urine should escape, this condition will persist only a few days. As after any stricture operation, sounds should be continued in the usual way.

If no guide can be passed prior to beginning the perineal operation, the technic is a little more difficult in order not to wound the urethra unnecessarily, but the general procedure is the same. A blunt guide should be passed to the stricture and the tract dissected down to the urethra and, instead of its being ligated at this time, it should be split open its full length, when a probe and then a slightly curved, small director may be passed into the urethra in either direction. In the groove of the director a small Otis urethrotomy knife may be passed, dividing the stricture. After the passage of sounds the rubber catheter is to be inserted, the tract ligated and sutured and the wound closed as above described.

The appended cases are examples of the two conditions which may be met:

Case I. This man, 38 years old, and in good general health had been operated upon successfully eight years before for stricture. In December, 1910, he entered the Boston City Hospital. Examination showed the presence of an impassable, deep stricture and a perineal fistula of about seven weeks' duration, through which all of his urine passed. He was operated upon by one of my colleagues who divided the stricture after enlarging the perineal wound and seeking the urethra with a guide. In so doing the urethra was opened for about two inches. The sinus was curetted and the wound packed after a catheter had been inserted through the whole urethra for bladder drainage. The catheter was removed in about seven days after which sounds were passed. It was one month later before any urine was passed through the penis. At the end of three months there remained a perineal fistula through which most of the urine escaped, although a French 28 sound could be passed.

The above was the condition when I saw this patient and the following operation was performed for the closure of the fistula. A small probe in the fistula came in contact with a steel sound previously passed, and the tract was about one inch long. With a Maisonneuve instrument several narrow places in the deep penile and membranous urethra were divided and then dilated to the size of a French 30 sound, and a soft rubber catheter, French 28, introduced with a stilette and left for permanent drainage. Patient was then put in the lithotomy position. Steps were carried out as given above in detail and briefly were as follows: Oval incision around the opening of the fistula leaving a narrow margin of skin a little enlargement of the wound antero-posteriorly, at either end of the oval incision, then a careful excision of the fistulous tract down to the urethra. The tract was then ligated with No. 1, chromicized catgut and excised, a strand of gut being left long to act as a drain. The wound was nearly closed with buried, plain catgut sutures and large mass sutures of silkworm gut for the skin and deeper tissues. Nothing but scar tissue was exposed by this dissection, which made a conical cavity narrowing at the urethra. The convalescence was uninterrupted. On the eighth day there was a slight leak of urine from the wound. Catheter removed on the eleventh day and the stitches on the fourteenth day, at which time a few drops of urine escaped through a small perineal opening. A French 28 sound was passed on the seventeenth day and every five days thereafter. On the twenty-third day following operation the perineal opening was closed and remained permanently so and patient was passing a normal stream. Pathological examination of the excised tract showed only scar tissue.

Case II. A man, 48 years old, operated upon six years ago for stricture. The perineal wound healed but one year later a local abscess formed and a discharging urinary fistula has since persisted. Examination shows a redundant scar in the center of which is a small opening leading to the urethra. He has also an impassable stricture and most of the urine passes through the fistula. He was operated upon April 12, 1912, at the Boston City Hospital. The technic differs from that used in the above case because no urethral guide could be passed. Briefly, it was as follows: A guide was passed down to a deep stricture. The fistulous tract was dissected out its full length and it was then split open anteriorly down to the urethra. A probe was passed into the bladder, then a small grooved director, on which an Otis urethrotomy knife was passed, thus cutting a moderate stricture proximal to the opening in the urethra. In a similar manner, a probe and then a director were passed into the penile urethra through the small fistulous opening, using care not to enlarge it, and the deep, penile stricture incised. A Maisonneuve instrument was easily passed and the knife used to ensure a full division of all strictures. The urethra was dilated with a French 30 sound and then a No. 28, soft rubber catheter introduced with a stilette. During all this manipulation great care was exercised not to injure the urethra unduly nor enlarge its fistulous opening. Finally, the base of the tract was ligated and excised, as in Case I, and the wound closed except for a strip of rubber tissue, one-eighth of an inch wide, which was removed on the second day. The catheter was removed on the fourteenth day. This wound healed by first intention, there being no escape of urine or exudate. It remained permanently closed and he passed a normal stream.

A NOTE ON A CIRCUMSCRIBED EPIDEMIC OF DIPHTHERIA.*

BY HERMAN M. ADLER, M.D., BOSTON.

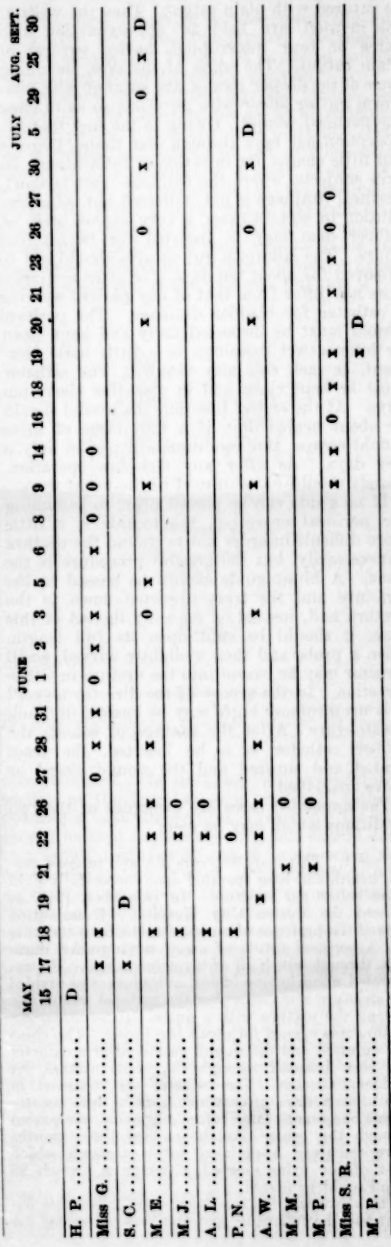
On May 8, 1911, there was admitted to the female reception ward (Ward A1) at the Danvers State Hospital a female patient (H. P., No. 16166) in a stuporous condition. The patient was restless, got out of bed frequently to wander about, occasionally would scream. Temperature, normal. Physically nothing unusual was noted, and a provisional diagnosis of dementia praecox, katatonic form, was made. Patient continued restless, delirious and unconscious. Temperature was taken once or twice more during the following few days and was found to be not over 99. On account of her disturbed condition, she was removed from the bed *a* in the main ward to bed *b* in the annex for two days and one night, May 12 to 14. On May 14 she was put back in bed *a*, where she died on May 15.

A postmortem examination was made (autopsy No. 1487). The pathological findings consisted of an acute adhesive pleuritis on the right side, an acute bronchitis, a thin gray membrane on the tonsils, and a small necrotic membranous patch on the laryngeal surface of the epiglottis. A smear from the latter showed slender bacilli with deeply staining ends. The culture from the same showed a typical Klebs-Loeffler bacillus, which was injected into two guinea-pigs, resulting in their death within 24 hours. A typical pure culture of Klebs-Loeffler bacillus was obtained from the guinea-pigs after death.

The day following the death of this patient one of the nurses who had attended her developed a severe sore throat with high temperature and a typical membrane, from which a pure culture of Klebs-Loeffler bacillus was obtained. The ward was placed under strict quarantine and every patient was examined for signs of diphtheria. A throat culture was taken from every patient who complained of a sore throat, and besides from each patient whose throat appeared unusually red. There are 19 beds in the annex, of which 17 were occupied on May 8, 2 being vacant. There were 40 patients in the main ward. The patients in the annex were all bed patients and the patients in the rooms off the main ward, as well as in a few of the beds in the ward itself, were bed patients. Nine patients slept in cots (dotted outline on plan), which were set up every evening.

On May 17, that is, two days after the diphtheria bacillus was found at autopsy, the nurse, Miss G., who had taken care of the patient, H. P., complained of a severe sore throat, which yielded a positive Klebs-Loeffler culture. The throats of all the patients in the ward and annex were inspected, and cultures were taken from those that appeared unduly red. Out of eight

* From the Laboratory of the Danvers State Hospital. No. 23 of the Danvers State Hospital Series.



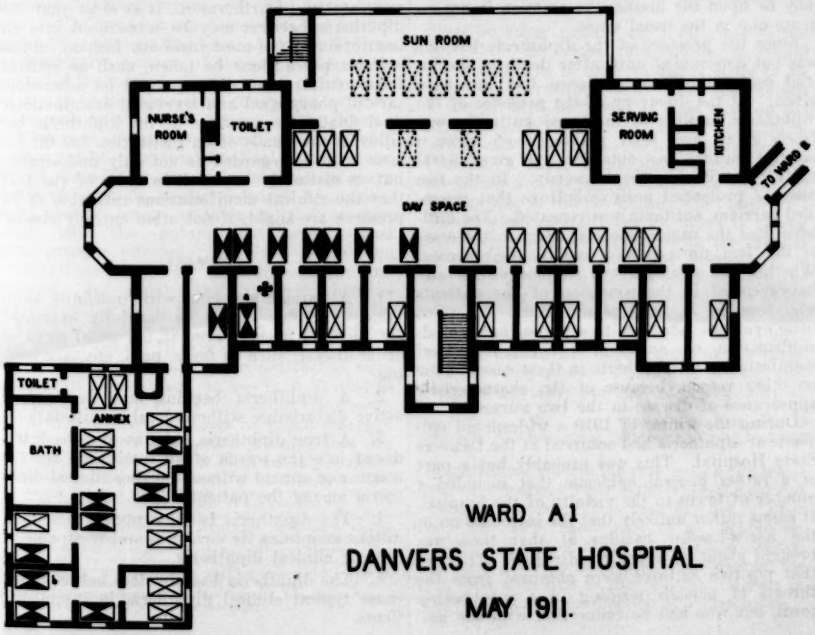
thus taken, five yielded the Klebs-Loeffler bacillus. The nurse alone was ill with diphtheria. On May 19 two throats fell under suspicion, of which one yielded a positive culture, the other, a nurse, was negative. On May 22 four patients were tested and two yielded positive cultures. There were thus eight cases from whom positive cultures had been obtained. Those that were not already in the annex were now moved there, and it was attempted to concentrate positive cultures there and to maintain a quarantine barrier between the annex and the rest of the ward in addition to the quarantine that was established between the entire ward and the rest of the institution.

In the course of the next few weeks the throats of practically all the patients in the ward were examined. No new cases were admitted. By May 26 five of the eight positive cases were negative on bacteriological examination. No further cases developed until June 9, when a nurse in the ward on the next floor above the quarantine ward developed acute diphtheria with positive throat cultures. She was isolated at once and no further cases were observed. On June 18 the last new positive culture was obtained from a moribund patient.

A noteworthy point about this epidemic is that the acute cases of diphtheria were limited to two nurses, and that in spite of the comparatively widespread presence of the Klebs-Loeffler bacillus in the ward, no case of clinical diphtheria developed among the patients. A comparison of the figures on the table will show that the two cases of clinical diphtheria, Miss G. and Miss S. R., lasted about 17 to 20 days each. The cases among the patients lasted only a few days each, with the exception of two who remained positive for weeks.

Although it is not improbable that the patient, H. P., who introduced the Klebs-Loeffler bacillus into the ward, died of the effects of the same, it would be hardly fair to state that she suffered from diphtheria. Just what the relation between this infection and her psychosis was, it is hard to say. With the known affinity of diphtheria toxin for the nervous system, it is likely, however, that some connection existed.

The patients that had positive cultures during this epidemic occupied the beds indicated on the plan by the black triangles. The exact movements of each patient could not be determined, so that the date at which the patients occupied the beds cannot be stated. But each bed marked with the two black triangles was slept in by a patient who had a positive culture, and all beds not so marked were occupied by patients who at no time during this epidemic had positive cultures from May 8. This means, in other words, (1) that we were dealing here with a contact infection, (2) that the bacillus was introduced by a patient not apparently suffering from diphtheria, (3) that at no time during the entire period of observation a case of diphtheria



developed among the patients, and yet (4) that this bacillus was the true diphtheria bacillus, capable of causing clinical diphtheria, as is evidenced by the fact that two nurses became thus infected. These findings are of particular interest in connection with the well-known occurrence of a diphtheroid bacillus, the *B. paralyticans* of Dr. Ford-Robertson. It is fair to assume that had the initial case been overlooked, as might easily have been done, even at autopsy, the first warning of the presence of a diphtheria bacillus in the hospital would have been the case of the nurse, Miss G. Considering the fact that only two nurses had positive cultures and were ill, it might well be considered that but for the accident of the illness of these two, the presence of the diphtheria bacillus in Ward A1 at Danvers in 1911 might not have been observed until weeks, possibly months, later. Meanwhile, the quarantine not being maintained, the organism would have been carried all over the institution, and in due course of time an epidemic would have broken out at various points of the institution, so that it would have been impossible to give any reasonable account for its introduction or distribution. Just why these insane patients did not develop clinical symptoms, and just what the relation of the presence of diphtheria bacilli in nose or throat to their physical health may be, remains still to be determined. It seems, however, probable from this experience that whatever the effects may be upon the insane, the reaction is not an acute one in the usual sense.

Since the presence of the diphtheria bacillus was not determined until after death in the initial case, diphtheria antitoxin had not been given. At the discovery of the presence of the diphtheria bacillus in the ward antitoxin was freely given, and each patient from whom a positive culture was obtained was given 6,000 units of antitoxin subcutaneously. In the two cases of prolonged positive culture that resembled carriers, antitoxin was repeated. The antitoxin had the usual beneficial effect in the cases of the two nurses, who rapidly defervesced. Whether the antitoxin was responsible for any improvement in the condition of the patients who received it, remains uncertain. There is little evidence, however, to suppose that the administration of antitoxin prevented clinical manifestation of diphtheria in these cases, if for no other reason, because of the characteristic appearance of disease in the two nurses.

During the winter of 1910 a widespread epidemic of diphtheria had occurred at the Danvers State Hospital. This was probably but a part of a rather general epidemic that included a number of towns in the vicinity of the hospital. It seems rather unlikely that the introduction of the Klebs-Loeffler bacillus at that time was brought about by a single individual. The fact that positive cultures were obtained from the throats of persons residing in a neighboring town, but who had no connection with the hospital, strengthens this belief. The broadcast dissemination of the diphtheria bacillus throughout the hospital and dependencies at the time when the first cases of clinical diphtheria were observed would make it appear probable that the contagion was introduced at various points simultaneously. However, it must be remembered that hospitals for the insane offer special facilities for the dissemination of bacteria, such as the diphtheria bacillus, and in view of the findings in this small epidemic, it would be unwise to exclude the possibility, at least, of the introduction of the original infection in 1910 by a single case. It is a belief of many that the diphtheria bacillus is ever present in the wards of hospitals for the insane, and that, if routine cultures were taken, the Klebs-Loeffler bacillus, or at least one morphologically and culturally identical with it, would be found in about as many cases as it has been in some of these so-called "epidemics." This was one of the questions raised at the time of the epidemic of 1910, which could not then be answered, although few who had observed the course of events at that time could doubt the significance of the positive cultures. The circumscribed epidemic, which is the subject of this communication and the frequently demonstrated possibility of rendering an entire ward free from positive diphtheria cultures are sufficient evidence that the presence of the diphtheria bacillus in the wards of a hospital for the insane is preventable. Furthermore, it is clear that the diphtheria bacillus may be introduced into an institution in the most insidious fashion, unless suitable precautions be taken, such as routine throat cultures on every patient on admission, careful pharyngeal and laryngeal examinations. And finally, the presence of the diphtheria bacillus in the wards of an institution for the insane is to be regarded as not only undesirable, but as distinctly harmful, in spite of the fact that the clinical manifestations referable to its presence are slight, if not often entirely absent.

SUMMARY.

1. A patient suffering with indefinite katatonic symptoms should be carefully examined for physical disease, even if the usual signs of acute disease, such as fever, pain, etc., are lacking.

2. A diphtheria bacillus may be causing active disturbance without local manifestations.

3. A true diphtheria bacillus may be introduced into the wards of an institution for the insane and spread without causing clinical diphtheria among the patients.

4. The diphtheria bacillus under these conditions maintains its virulence and is capable of causing clinical diphtheria.

5. The diphtheria bacillus does not as a rule cause typical clinical diphtheria in insane patients.

6. The attendants are liable to infection with true diphtheria, and often present the clinical picture of diphtheria although none of the patients in their charge are characteristically ill with the disease.

7. Diphtheria antitoxin should be freely used even in the absence of clinical diphtheria.

TUBERCULOSIS AND PUBLIC HEALTH IN SOUTH AFRICA.*

BY JAMES A. HONEIJ, M. D., BOSTON.

THE consideration of tuberculosis as it occurs in South Africa is of interest because of its several distinctive features.

(*a*) The difficulty of diagnosis in early stages among the natives and miners in the gold mines, due to other diseases, such as pneumonoconiosis, pneumonia and temporary congestion of the lungs, due largely to the mining occupation, rapid change in temperatures below and above the surface and to the large proportion of alcoholic subjects.

(*b*) The rapid course of the disease. Often natives succumb to tuberculosis within a few months.

(*c*) The common absence of cough and expectoration in all stages.

The general appearance of the native suffering from advanced tuberculosis is most noticeable and marked; there is no mistaking the disease. The temperature and pulse are not unusual. The cases among Europeans are no different from what we find here. Autopsy findings are instructive because of the prevalence of infection of the mesenteric glands; in this we may get a clue to the absence of cough and expectoration and to the rapid course of the disease. In a series of postmortem examinations reported from a native compound hospital a large number of cases of tuberculosis had the primary centre of infection in the abdomen, the mesenteric glands being apparently the starting point and the spleen the organ most often grossly affected. In eight postmortem examinations made by the government pathologist, in which the tubercle bacillus was demonstrated in the sputum before death, no tubercle bacillus was found in sections of the lung in four cases. In another series of 249 sputum examinations of east coast natives, 44 were positive; of the 44 cases, no less than 30 died in the hospital. This shows how acute the disease is. Although I saw no cases in which enlarged neck glands were prominent, it is stated that this is an exceedingly common form of tuberculosis.

The next series of cases that are instructive are those of the Miners' Phthisis Commission. Under "Class 3" (purely arbitrary classification based on anticipated life period) 101 cases (Europeans) occur; all these cases were also infected with tuberculosis, proved by sputum examination; of 192 cases under "Class 4," 67% had the tubercle bacillus in their sputum. In the total group of miners' phthisis cases, "Classes 1 to 4," 30% were suffering from tuberculosis.

In considering these cases it might be well to compare them with the figures obtained among the granite workers at Quincy, Massachusetts (Gordon). Those dying from all causes, 46% was due to tuberculosis. The age period of greatest mortality was between 40 and 70 years; in Johannesburg the greatest mortality was between 30 and 40 years. Yet the occupations of the two are similar, except for the poorer air, etc. These figures present the seriousness of the disease among the miners in Johannesburg. The probable length of service, as stated to me by the head of one of the mining houses, was from 5 to 8 years. It was also sarcastically and cruelly stated, that the miner should have saved sufficiently during this period to leave the mine and do something else, so as not to die on their hands. In natives these figures must be fully 20% higher. From another series of 187 postmortem examinations reported, made on east coast natives (supposedly less affected than other natives) almost 34% of tuberculosis was found.

Since so many natives die from other causes before they die from tuberculosis, it would prove instructive to have autopsies made to ascertain the percentage that have tuberculosis and the probable influence it must have on the weak resistance the natives have to pneumonia. It is also not unlikely that a large proportion of the so-called rapid acute pulmonary cases of tuberculosis are largely secondary to intestinal infection, due to the bovine tubercle bacillus.

The greatest mortality in the mines is among the natives, which corresponds with the few figures obtainable from the Cape Colony. It is stated that from 30 to 50% of all deaths are due to tuberculosis. Among the colored it is about 40% greater than among the Europeans. The following figures obtained from the Public Health Department's Report for 1908, is interesting for comparison. The figures are the percentage of mortality per 1000 of population:—

Tuberculosis, ...	Whites 1.29	Colored 6.59
Pneumonia and bronchitis,	Whites 1.35	Colored 9.50

In phthisical resorts the rate among the white population is about 6 per 1000, while the colored population almost trebles that number. Other figures for 1908 show that of all deaths occurring in the chief towns of the Cape Colony, 20% among the colored and 10% among the Europeans were due to tuberculosis. Marais in "The Control and Eradication of Tuberculosis,"

* The following paper is the result of an investigation made some months ago on a trip to South Africa. A more or less general report on tuberculosis will appear in the January issue of the *Journal of the National Association for the Study and Prevention of Tuberculosis in America*. The Government of South Africa has appointed a commission to make inquiry regarding the prevalence of tuberculosis and its causes. Much attention has, therefore, been brought to bear on the subject, and the following article may be of some interest as written from a more or less critical point of view. For a further understanding of the question I would refer readers to the article appearing in the *National Association Journal* under the same heading as the present paper.

states that among Europeans the mortality from tuberculosis in the Cape Colony has had a greater average during the last ten years than either England or Wales; while among the colored population, the averages are 5.9 per 1000 higher. Among the colored population more deaths occurred under the age of twenty years and over five years than during any other period of life. Among the Europeans mortality for age periods shows but slight difference after the age of five years. In New York State, the rate among Europeans is about 2 per 1000 and among the colored 5 per 1000, which is probably somewhat high.

Between the years 1906 and 1908, according to the medical officer's report for the Cape Colony, there has been an increase of 27% in cases of tuberculosis reported. Whether there has actually been an increase in the number of cases to that extent is questionable. From figures obtained in New York state and in Germany the disease is on the decrease. Should the government of South Africa become energetic it would be at least ten years before the disease would be under control, especially considering the sources of infection,—the gold mines of Johannesburg, an ignorant and filthy colored and native population, and the general unsanitary condition, almost without exception, existing throughout South Africa.

In regard to bovine tuberculosis, it can be said, considering that more care is exercised by the government over cattle than over human beings, that South Africa is fairly free from the disease. It occurs more in the Cape Colony than elsewhere, and may have some relation to the greater prevalence of tuberculosis among the population there than in the other states. The government veterinary reported that of 1,980,393 animals passing through the market at Johannesburg in two years, only 328 cases of tuberculosis were found, but of this number 252 cases accurred among pigs. And in this connection it is interesting to note that the greater number of pigs that are sold are kaffir (native) pigs, and, as has already been stated, tuberculosis is more prevalent among the natives. It would certainly seem that tuberculosis infection from natives is of tremendous seriousness. Among milch cows it has been calculated that tuberculosis exists in about 7% of all the cows of the Union. Considering that the cows are grazing in unrestricted land and under a clear, warm sun and good air during the greater part of the year, and are not in mixed herds or in close and dirty stables, 7% seems to be an unusually high figure. Afrikander cows, it is interesting to note, are practically free from the disease; this is also true of the South African born population.

The final consideration of tuberculosis is its relation to other diseases. Among the mine laborers, the principal associated diseases are:

1. Pneumonoconiosis.
2. Pneumonia, pleurisy, etc.
3. Bilharziosis.
4. Cerebro-spinal meningitis, etc.
5. Syphilis.

1. Pneumonoconiosis or miners' phthisis figures have already been given, but it may be well to enlarge somewhat on the subject. Although in all trades in which dust of any form is an important factor, as in the mines, lungs and air passages suffer and are irritated, the effect is a predisposition to any infection to which the worker may be subjected. But from the experience of the large factories of America, the presence of dust is by no means such a great factor, when a large percentage of possibility of infection is eliminated. The possibility of infection with the tubercle bacillus is increased in exact ratio to the lack of proper air and breathing conditions. If the newly employed miners are free from tuberculosis, no amount of dust will produce the disease among them, nor can they infect the older miners; but there is every possibility of these new miners becoming more speedily infected in the stopes and levels in irritating and dust-laden air, if the mines have been previously occupied by an infected miner in any of the three stages, or if they are associated in their work with an older miner infected with tuberculosis. The possibility of prevention is far more practicable under these conditions than that of cure.

There seems to be sufficient proof for assuming that the increase of tuberculosis is far greater among the miners from England (Cornwall, etc.) than among South African born. Tuberculosis is rife among the miners in England, whereas the presence of sun and more natural conditions must be of benefit to South African born miners.

It is highly probable that miners arriving from England are, in a certain percentage, in a tubercular condition before being employed in the Johannesburg mines, and must naturally add constantly to the danger of increasing the diseases among the miners already there.

For proof of this, it is important to know whether the miners dying from tuberculosis have had a long or short residence in the South African mines, what the duration of the disease has been, and how many years they have been employed as miners in any place.

It is important to know the death rate per 100 miners from tuberculosis, *i.e.* to estimate not the increase in the number of deaths, but the percentage increase per 100 miners. Nationality is important here, too, to estimate whether there is an increase in deaths from tuberculosis among South African born or among miners of some years' residence.

It may be shown by these and other observations, that mining itself is less of a factor in Africa than supposed, and that the increase of tuberculosis is due to

First, Infection due to carelessness and ignorance of miners in the second and third stages.

Second, Ignorance in home living, poor dwellings, want of advice.

Third, The rapid increase in the number of new miners who arrive in a phthisical condition.

Tuberculosis in its earliest stages can be detected by a trained physician, and a thorough examination of miners before being employed will aid in eliminating the disease, together with the regular examination of older miners who may show any of the many signs of tuberculosis. This may be brought to the attention of the miners, if notices giving the first symptoms are posted in conspicuous places throughout the mines.

Miners discovered with any of the symptoms and signs of tuberculosis, can be readily apportioned to different grades of work according to the stage of the disease and the physical condition they are in.

The x-ray (fluoroscopic examination) can be used not only for tubercular patients in questionable cases, but in diagnosing cases of bilharziosis with areas of calcification in the lungs, which may also have some relation to the later onset of tuberculosis.

2. The mortality at present is greatest from pneumonia, but whether pneumonia is superimposed on tuberculosis is, unfortunately, not ascertainable. The difficulty, as has been stated, in making a diagnosis between this disease and tuberculosis was demonstrated to me in a hospital for miners where two cases of tuberculosis were discovered among pneumonia patients in a pneumonia ward. Pleurisy need hardly be mentioned more than to say it frequently occurs, and whether tubercular or not, cannot be stated from my experience.

3. Bilharziosis is prevalent. Areas of calcification in the lungs are frequently found by autopsy and undoubtedly could be determined during life by x-ray examination. Just how close a relationship these cases bear to the later infection by the tubercle bacillus is still a matter for investigation. It certainly merits investigation, considering the almost universal infection among certain native tribes. I saw several cases also among Europeans, and just how common it is, is difficult to determine. Turner, in a report on pulmonary bilharziosis in South Africa, gives a series of 59 consecutive postmortem examinations showing the number of cases of lung infection with bilharzia. Of the first group of 33 dying of pulmonary complaints (17 tuberculosis, 13 pneumonia, 3 other respiratory diseases) the lungs contained bilharzia ova in 23 cases. Of the second group of 26 cases dying of other than respiratory diseases, the lungs in 14 were found to have the bilharzia ova present. It shows that the larger percentage of bilharzia ova were found in those dying from respiratory diseases and that the greater number of those dying of respiratory diseases were from tuberculosis. The opinion may be expressed then that the susceptibility of the native to chest diseases, tuberculosis and pneumonia, may be largely due to his previous infection with bilharzia.

4. Cerebro-spinal meningitis. This disease accounts for almost as many deaths in the mines as pneumonia. Whether the tuberculosis type of meningeal infection is common or is responsible for the majority of deaths, was impossible to determine. It undoubtedly plays an important rôle. In one ward in a compound hospital I saw twenty-three cases in all stages of the disease, but here I am pleased to recall the fact, that during my stay there Flexner's serum was used with marked success, and it was anticipated that the mortality from cerebro-spinal meningitis would be reduced by at least 60%. Regarding the sources of infection, I believe an investigation of the mines would be a promising field.

5. Syphilis. I have already stated how exceedingly prevalent this disease is amongst the natives and especially among the northern Transvaal tribes. Here in America the relationship between syphilis and tuberculosis among the negro race has often been the theme of discussion. In South Africa this relationship is accentuated. It is merely a constitutional condition, a predisposition or an anemia with lack of resistance when tuberculosis is superimposed. In regard to this question and all the questions I have brought forward, there is emphasized the need of scientific investigation.

What will be, therefore, the logical action of the government when the commission now investigating the prevalence of tuberculosis in South Africa, which is unquestionable, has made its report? It is a matter of regret that the commission did not contain one tuberculosis expert or a man trained in tuberculosis work. Perhaps it will not be out of place to present here the field of work which the South African government could profitably choose from or carry out.

In the first place, an expert, preferably from Holland or Germany, should be imported, a man fundamentally and thoroughly grounded in the morphology, pathology and bacteriology of the tubercle bacillus and tuberculosis, so as to first establish the work of the government. In the second place the appointment of a good working commission or board for administrative, medical, legal and constructive purposes. The following might then be considered:—

(*a*) The restriction of immigration and the total prohibition of persons suffering with tuberculosis in the second or third stage; the placing in sanatoria all those in the first stage.

(*b*) The positive control and later elimination of the centres of infection. The segregation at compounds, missions and locations, in new compounds, etc., of all cases of tuberculosis.

(*c*) The compulsory physical examination of all mine laborers and all natives applying for labor in towns, etc. The absolute demand for a "clean bill of health."

(*d*) The forbidding of natives in the employ of Europeans to lodge outside of the locations, compounds, etc.

(*e*) The proper hygienic location and construction of compounds, etc., and efficient sanitary supervision to prevent overcrowding of huts, dwellings, etc.

(*f*) The erection of hospitals and sanatoria for advanced cases and for all other tuberculosis patients.

(*g*) The establishment of dispensaries and visiting nurses for the collecting of early cases and the following home supervision and care.

(*h*) The examination of all school children and the removal of all infected children from school.

(*i*) The supervision of all working classes and their homes.

(*j*) Financial or other assistance for families where the main bread winner has been removed; and other aid to individuals with arrested or "cured" cases, such as employment on farms, etc.

(*k*) The proper supervision and handling of milk and the inspection of all milch cattle, etc.

(*l*) The energetic enforcement of all laws and regulations made regarding public health and tuberculosis.

(*m*) The creation of a health educational system to give proper instruction to officials, schools, institutions and the public, through lecture bureaus, pamphlets, newspapers, etc.

With Europe and America to learn from and with the proper spirit, there is no reason why South Africa should not go ahead, provided the government takes up its own responsibility and enforces the mine magnates to take up theirs. But she should also,

First, Keep politics out of all health matters.

Second, Undertake the proper modern sanitation of its towns and districts.

Third, Totally prohibit all Asiatics, etc., from a health point of view and handle the native question firmly.

Fourth, Secure earnest and good workers, scientifically trained for their campaign against tuberculosis.

South Africa has much to contend with, but she has nature in her favor and that is half the battle won. It is a large country but with a comparatively small population, a large agricultural area and sufficient financial means. The sun, the wonderful climate, the large expanse of country and a hardy people,—all should encourage the South Africans that their problem can be solved if they desire it so. She should rather give an ear to the callings of nature, than to the solutions advertised in the newspapers or given by the selfish mining organizations. We shall watch with a good deal of interest what the South African Government intends to do and how she does it.

ON THE NATURE OF THE FEELING OF UNREALITY.

BY J. W. COURTNEY, M.D., BOSTON.

MEDICAL admirers of Dante and Poe are wont to extol the wonderful *imaginative* powers of these writers and to marvel at their subtle portrayal of the tortures of the human soul, entirely unmindful of the fact that the *actualities* of every-day morbid psychology—even in an humble country practice—are as striking and impressive as anything within the pages of the "Inferno" or the "Tales of the Grotesque and the Arabesque."

A working knowledge of these actualities is, however, but slowly diffused through the rank and file of the profession, owing to the further fact that so many writers who treat of morbid psychology are led away from the practical into the realm of philosophic abstraction. In the present paper the endeavor will be made not to forget that the pathology of any disorder is always a matter of physiology gone wrong.

The existence of the unfortunate victim of the feeling of unreality is—as the case about to be cited will show—an inferno, to which even the most heartless would shudder to see their worst enemies condemned:—

A. G., a Russian Jewess, aged 25, married, consulted me in June, 1912. There has never been any actual insanity in the family. The father of the patient is well; the mother was under my care some years ago for a very severe trigeminal neuralgia; and an only brother, an adolescent, is the victim of the most extraordinary combination of phobias, obsessions, folies du doute and manias of various kinds.

The patient herself has always been more or less nosophobic, but had no special illness since childhood up to April 25, 1912, when she underwent a curettage after a miscarriage. Prior to this operation there had been severe uterine hemorrhage, and there has been very marked menorrhagia on several occasions since.

The loss of so much blood naturally produced a severe grade of anemia which was accompanied by cardiac palpitations, neuritic pains, twitching in various parts of the body and other physical symptoms. But what drove the patient to seek relief was the absolute torment of mind in which she passed her days. Her delay in coming was due to her suspicion that she was hopelessly unbalanced mentally and her dread of having suspicion turned into certainty by medical investigation.

Since the operation the whole world has seemed to her unreal and she feels as if her own body had been entirely transformed. She marvels at the fact that she has intelligence and memory and can carry on a conversation. From morning till night and form one month's end to the other she has to keep up an argument with herself to prove, even temporarily, to her satisfaction that it is *her* voice with which she talks, *her* hands with which she grasps things, *her* legs which carry her about. She compares herself in her lifeless state to a flower that has withered or, less poetically, to a tooth whose nerve is "dead." In her darkest moments she declares that she hasn't got a bit of feeling, that she is not

a part of this world, that she can't feel food and can't tell when she has had enough.

The complete list of her complaints is a long one: Nothing means anything to her. When she bows to people on the cars or the street, it's as if they were miles off. She is completely numb; nothing stirs her. It doesn't seem real to go home or to be here (in my office). She can't realize that there are dates, hours or weather. It bothers her that this is a "truly" world, that we have to sit around in it and that things came into it—whence we do not know. She is also troubled by the fact that there are other great parts to the world we don't know about and so many car lines we never take. She keeps reiterating that there is something radically dead all through her. Finally, to quote her own words: "It seems to me as if all were darkness and the end of the world near. It seems queer to have to put on clothes. I don't bother to put on good clothes. If I had my own way I would go around naked because nothing in me stirs me to the feeling that it is wrong. I have no feeling of shame, anger or joy. I never feel cross, tired or hungry. My heart doesn't beat. I used to feel it at night, but I don't now. I could keep my hand outstretched for hours and it would not feel tired. I never feel sleepy. If a motor-car goes by when I cross a street, nothing stirs me to get out of its way—there is a numbness. It's just as if there were a big black curtain . . ."

There is an obvious disjointedness in this relation of symptoms, and the patient's language is tinged with the hyperbole of despair; but with due allowance made for the latter fact, it is still perfectly obvious that the hell of her mental torture is complete.

She is tall, extremely well developed and nourished. Intellectually she is above the average young woman of her station in life. She walks and stands normally. The pupils are equal, regular in outline and prompt in their reaction to light and distance. The field of vision, both for form and color, is normal. The other cranial nerve functions are normal. The heart area is normal and, in spite of the manifest anemia, there are no hemic murmurs. Sensibility in all forms is well preserved. There is no disturbance either of the deep or the superficial reflexes. Joint and posture sense are normal. In a word, the examination, from every standpoint, is practically negative.

Particular attention is here called to the fact that sensibility in all forms is well preserved. This finding is not peculiar to the case in hand. The situation is the same in all cases of the sort, and this fact has been seized upon and used as the foundation upon which theories upholding the purely *ideational* nature of the feeling of unreality are built.

Of these theories, with one exception, nothing will be said. That of Janet[1] is, however, so curious that it merits special attention. According to this observer, the uncanny feeling in question results from the loss of a special intellectual operation of the highest order; and in a preamble to the exploitation of this theory he says: "Anyone might suppose, at first sight, that syllogistic reasoning is a higher type of intellectual achievement than the recognition of the actual existence of a person or a flower, and yet I believe I can show that on this point common sense is in the wrong."

By the terms of his theory, the special intellectual operation of the highest order which conditions the feeling of reality of self and of the outside world is the "function of the real." He says: "The first form of this function of the real is the action which allows us to cope with external objects and to metamorphose reality. This voluntary action itself presents different degrees of difficulty. From the point of view of its object, it seems that it becomes more difficult when it is social, when it has to be brought into play, not only in the physical, but also in the social milieu in which we are thrown.

"It is also difficult when it is professional, that is to say, when it comes to the performance of the duties of a practical occupation which ought to achieve definite results, satisfy a critical clientèle and earn for us our daily bread. . .

"The last term of this function of the real, the one which probably resumes all that have preceded, is a mental operation unfortunately little known: the constitution of time, *the formation in the mind of the present moment*. Time is not given to the mind as a finished product; to demonstrate this fact one has only to study the illusions of children and of the sick on this point. . . The real present for us is an act or state of a certain complexity which we embrace in a single state of consciousness in spite of this complexity and in spite of its real duration, which may be more or less long. For people who are *distrait*, indifferent to reality, this present is prolonged and remains vague; for active minds which are always on the minute this present narrows down and becomes precise. There is a mental faculty for which one might coin the term *presentification*, which consists in rendering present a state of mind and a group of phenomena. . . "

A dispassionate analysis of the above psychologic abstraction brings one at once to the realization of the hazard one incurs in departing from the dictates of common sense when exploiting a theory. Denuded of its psychologic phraseology, the theory, as the present writer understands it, is very briefly this: That it requires the highest grade of intellectual activity to be able to realize that one is wide awake and thoroughly prepared at all times to cope successfully with the ever-changing vocational and social complexities of every-day life.

By the terms of such a theory one is warranted in assuming that when a child first refers to itself as "I" and expresses a recognition of some external object—a flower, for example—it has attained to a height of intellectual achievement impossible to surpass in after life. By these same terms the "man on the street" may be a greater intellectual giant than a paleontologist, and in like fashion, the society leader may outstrip the psychologist.

To even the least captious critic strong objections to such a theory at once present them-

selves. In the first place, the clinical psychologist is fully aware that to the victim of the feeling of unreality the present is by no means vague. The latter's trouble with regard to time, just as with regard to everything else, lies in the realm of feeling. As one of my patients very aptly put it: "I know perfectly well when it is twelve o'clock; but don't you know what it is to *feel* that it is noon? That's what I can't do."

There is an equally serious objection to the conception of the "function of the real" as a high intellectual attainment which conditions the response to social demands. By no argumentative subtlety can it be shown that the victim of the feeling of unreality, who is incapable of coping with life's social complexities in the broadest sense, is, in the slightest degree, intellectually defective. His failure to respond to the call to action results from the unequal struggle which is constantly going on between his intellect and his emotions, and in which, it is needless to say, the latter are always victorious. Hence, to state the obvious, the defect considered by Janet as a loss of the "function of the real" may also be traced to the realm of feeling, since emotion is but a higher form of feeling.* Similar objections to the Janet theory will be offered as this theme develops. At this juncture an inquiry into the feeling of *reality* seems pertinent.

The every-day expressions, "I feel like myself" or "I don't feel like myself" at once suggest a contrast between the totality of bodily sensations which constitute the *ego* of the moment and a standard norm of self-reality feeling. If this is granted, we must reasonably assume that this standard norm is probably formed in vigorous early life, when all forms of activity-consciousness are most vivid and also most coherent in their relations, and that it stands as an ever-constant complex against all the other contents of consciousness. This assumption is strongly substantiated by the fact that even early in adult life there still remains in consciousness, after the amputation of a limb, so complete and vivid a recollection of the sensori-motor possibilities with which it was endowed that, for a very long time, the lost member seems to continue to be a living and tangible part of the body.

With the above physiologic probabilities before us, we are in a position to undertake a practical consideration of the pathology of the phenomenon under consideration. Naturally, we may not speak of the feeling of unreality in terms of cellular or neuronic degeneration, but may consider it the result of a lack of vividness and coherency of relation in the primary sensory and sensorial elements which, in their totality, constitute the *ego*—the personality—of the individual.

* It is interesting to note in this connection that the so-called function of the real is often restored, for a time at least, by the ingestion of a certain amount of alcoholic stimulant—a rather curious peculiarity on the part of a high intellectual operation.

What proof have we in support of such a pathology? Janet and certain others would reject it on the ground that in their examinations of the victims of the feeling of unreality they fail, by tests of a sensory, sensorial and kinesthetic order, to find anything abnormal.

This objection seems to the writer altogether unwarranted, since it is absolutely impossible to judge of any complex *associative affect* by the primary sensational elements composing it. As a practical illustration of this impossibility one has only to attempt, by sensory, sensorial and kinesthetic tests, to get an idea of the feeling *flavor* which conditions a stroke in billiards, in which success—as Spencer[2] has pointed out—presupposes great exactness in the ratios among the combined muscular contractions, and in the adaptation of them all to the many combined impressions, the ratios among which have also exactly to be appreciated. In such an attempt the camel's hair brush, the esthesiometer and other similar implements would figure only as useless crudities.

In one of Janet's own observations the writer finds strong confirmation of the correctness of the views on pathology set forth above. Janet notes that subjects in whom the self-reality feeling is lost betray a certain disposition to "*neglect* agreeable or painful impressions." Now, if we examine into the nature of pleasures and pains, we find—as Spencer[3] has also pointed out—that while pleasures and pains are partly constituted of those local and conspicuous elements of feeling directly aroused by special stimuli, they are largely, if not mainly, composed of secondary elements of feeling aroused indirectly by *diffused stimulation of the nervous system.*

With this view of the nature of pleasures and pains before us, the so-called neglect of agreeable or painful impressions by the victim of the feeling of unreality becomes at once intelligible. Obviously, in his case there is lacking in the primary sensational elements the vividness and coherency of relation necessary for a diffused stimulation of the nervous system.

On precisely similar grounds we may explain the same individual's not uncommon complaint that *solid objects* look flat to him. We have only to consider by what a complex process of association a visual impression is transformed into a perception. The various distances, solidities, structures and so forth *appear* to be immediately given in the impression, but are really known by *inference* and severally imply many changes. These changes are practically synchronous with those constituting the impression itself, since the positions and natures of the objects are recognized *in the instant of perception.* So that beyond that complexity of a visual consciousness due to the many feelings and relations it concludes, there is a further complexity caused by the many *represented* feelings and relations, which are so closely united with the *presented* ones as seemingly to form with them *one consciousness.*

In the case of the victim of unreality we must infer, then, that the visual impressions are so lacking in vividness that they do not carry into consciousness anything beyond the presenting flat surface of the solid object seen. In other words, a diffusion of the visual stimuli does not take place; presentation and representation in consciousness of these stimuli are lacking. And without this diffusion complete normal perception is impossible.

To what, finally, may we attribute this lack of vividness and coherency of relation in the primary sensational elements, which leads to the feeling of unreality? Its explanation is simple, if we bear in mind that the feeling in question is never a clinical entity, but for the most part constitutes merely a single symptom of that very complex *adynamic* state of the entire nervous system, which we term psychasthenia.

In this last named disorder there is, as every clinician knows, a marked lack of tone in all the bodily functions. Physical exertion produces prompt over-fatigue; the blood-pressure is below normal; the secretions of the digestive glands are inadequate. . . in a word, the whole picture is, as already stated, one of adynamia. And into it, on this basis, the feeling of unreality best fits.

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[1] Janet: His Obsessions at La Psychasthénie, Tome I, pp. 476 et seq.
[2] Spencer: Principles of Psychology.
[3] Spencer: *Ibidem.*

Clinical Department.

A REPORT OF TWO CASES OF TUBERCULOUS MESENTERIC GLANDS OF THE CECAL REGION.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

THE very interesting paper by Dr. David W. Parker on "Tuberculous Mesenteric Glands Simulating Appendicitis," which appeared in the JOURNAL December 26, 1912, recalls two cases in children which were under the writer's observation and present some points of interest:

The first case was that of a boy four years of age who was referred to the writer for an operation for a right congenital inguinal hernia by Dr. W. J. Johnstone of Boston. The patient's history was devoid of any pathological data, other than the hernia which had been present since birth. He was a well developed child, rather tall for his years, strong and well built. Lungs and heart normal; no palpable enlargement of the superficial lymphnodes. The hernia descended into the scrotum and could be easily reduced, the contents appeared to be intestine only. Bowels regular.

Operation, July 7, 1907. Bassini operation. After isolation of the sac, which was easily freed and not thickened, it was opened with scissors near its neck when a light straw-colored fluid made its escape. It was so like urine that it was feared that a bladder diverticulum had been opened, but after enlarging the nick made in the sac, about two ounces escaped. The finger was then pushed into the abdominal cavity and a cluster of several lymphnodes, each about the size of a walnut, was detected in the region of the cecum. No tubercles could be felt over the peritoneal surface that could be explored by the finger and the internal surface of the sac presented nothing abnormal. The Bassini operation was then carried out and the wound closed.

The operative results were perfect and at no time did the temperature rise and the boy left the hospital in two weeks. At the present writing the child is in excellent health and the radical cure of the hernia perfect. The case is interesting from the fact that the tuberculous intraperitoneal process was cured by the exposure offered by the radical cure of the hernia and that it had no deleterious effect upon union by first intention. As it is now over five years since the operation was done it may be assumed that the tuberculous process is perfectly cured.

The second case was a little girl five years of age, seen with Dr. Wesley T. Lee of Winter Hill, Mass. She was not a strong-looking child, although it could not be said that she was delicate. Constipation had been troublesome for some months past. No thoracic symptoms. Appetite capricious. A day or two before seeing the patient she developed severe pain in the right iliac fossa, vomiting and elevation of temperature and pulse.

When seen, there was marked rigidity of the right rectus, the right leg was drawn up and the general condition was that of a patient suffering from an acute appendicitis. The writer saw her late in the evening and operation was done at six o'clock the following morning after the patient had passed a very bad night.

Operation, June 23, 1910. Incision in right semilunar line. On opening the peritoneum a little straw-colored fluid containing flakes of lymph escaped. The parietal peritoneum was highly congested but no tubercles were seen. The cecum and coils of small intestine, which were intensely hyperemic, were bound together by recent lymph exudate. After carefully separating them a large mass was brought to light in the shape of a large mesenteric lymphnode about the size of a walnut, surrounded by several other smaller ones varying in size from a cherry to an olive. The central and largest node was soft and almost fluctuating. The appendix was normal, but was not removed as it was deemed that time was of great importance owing to the poor condition of the patient. The lymphnode was not removed as we trusted to the curative effect of the exploratory incision and this was a wise decision as Dr. Lee informs me (Jan. 2, 1913) that the patient is now in perfect health. The abdomen was closed without drainage and the patient recovered uneventfully.

The after-treatment of these and similar pathologic processes should be followed up with a prolonged course of cod-liver oil, and I am old-fashioned enough to believe in the beneficial effects of iodine internally. I prescribe it, combined with tannin, as follows:

℞

Iodine	1 gram.
Tannin	4 gram.
Syr. ratanhiae	50 gram.
Syr. sacchar	440 gram.

M.D.S. 1 to 2 teaspoonsful in water after meals.

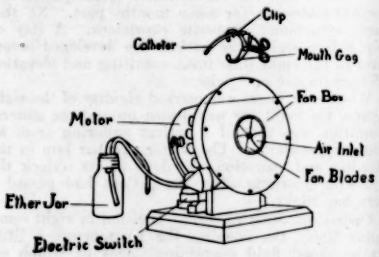
Naturally the hygienic treatment is of the greatest importance. I simply make these remarks relative to the medicinal treatment because it seems that the present-day surgeon completely overlooks this aspect of surgical cases.

New Instruments.

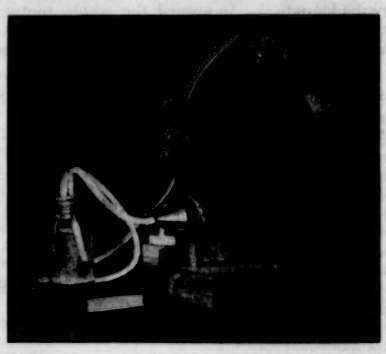
A NEW ETHER BLOWER.

BY S. J. BEACH, M.D., AUGUSTA, MAINE.

THERE has been in use on my service at the Augusta General Hospital for about six months, an apparatus which greatly increases the convenience of anesthesia by the vapor method. It was devised to relieve the etherizer from the manual labor necessary to pump a hand bulb or foot bellows, and to eliminate bulbs, chambers, and valves, the watching of which distract his attention from the patient.



The apparatus consists of a heavy electric fan motor mounted on a firm base. The blades of the fan are rectangular, about 4½ inches by 2 inches, set perpendicular to the plane of revolution. They are inclosed in a nicely fitted sheet metal case with a large inlet for air opposite the shaft and an outlet at the bottom ¼ of an inch in diameter, into which the blades sweep the air. When running, this fan delivers a current of air which is continuous without the necessity of an intermediate bulb or chamber, and is passed directly through a jar of warm ether, after the manner of the original Fillebrowne apparatus. From this it is carried by a tube attached to the mouth gag and terminating in a No. 20 soft rubber catheter. This is held to the mouth gag by a metal clip, through which the catheter slides. This arrangement of the gag, which was adopted at the suggestion of Dr. Richard H. Stubbs of the hospital staff, enables the operator to thrust the catheter nearer the fauces when very concentrated vapor is required, or to pull it out of the mouth entirely when more air is desired. If warm ether is preferred, a heater can be attached, though my experience coincides with the observation of Dr. Gwathmey and others, that the heated vapor is less efficient than that at room temperature. Although the fan is very easily controlled by an electric button, we find it simpler to allow it to run continuously and close off the current of ether when necessary by pinching the tube. Thus stopping the flow of the vapor does not in any way affect the motion of the fan, an advantage this blower has over the bellows type. For the same reason, it does away entirely with the difficulty of having the rubber tubes blow off from their connections when they become kinked or when some assistant steps on them. In fact, the entire apparatus is off the ground so that there are no wires or tubes on the floor to get caught or stepped on. I presume other dimensions adapted to any particular style of motor would work as well, but we find that this apparatus, made as described, keeps the average patient at just about the proper stage of anesthesia during an operation of any length. It works better if the entrance tube for the air into the bottle is not more than an inch and a half beneath the surface of the ether. It is hardly necessary to say that the water surrounding the ether must not be hot enough to make the ether boil.



The advantages of the apparatus are that it is entirely automatic and runs without any attention from the etherizer, who is thereby enabled to give all his attention to the patient; it is simple to construct, can be made by any machinist, and does not get out of order.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

THE TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 30 AND 31 AND JUNE 1, 1912.

SUGGESTIONS FOR THE SECOND QUARTER OF THE CENTURY.

DR. VIRGIL P. GIBNEY, New York City: I wish first to call attention to the many diseases and deformities still unrelieved by orthopedic measures.

For instance, there has been a failure, thus far, to secure perfect cures in hip disease. Pott's disease of the spine is also one of the diseases that is still uncured. This is true also of spastic contraction on Little's disease, and of the more obstinate forms of rotary lateral curvature of osseous origin. A decided advance has been made in the treatment of rotary lateral curvature—scoliosis. Poliomyelitis, with its resulting deformities and disabilities, constitutes another condition for which really very little has been accomplished in the way of cure.

AN ANATOMIC STUDY OF MANY OF THE CASES OF LAME OR WEAK BACK, AS WELL AS MANY OF THE LEG PARALYSES.

Dr. Joel E. Goldthwait, Boston: I have made a further study of the sacro iliac joint, in relation to the elements involved in its stability, and of the lumbo sacral and lower lumbar articulations, with a more complete study of the lumbo sacral transverse articulation. The lumbo sacral, the lumbo sacral transverse, and the sacro iliac joint bear a certain relation to each other in the production of strain. The anatomic position of the lumbo sacral cord and the spinal nerve roots, with reference to the articular and transverse processes, is an explanation of leg pain and paralysis.

DISCUSSION.

Dr. J. T. Rugh, Philadelphia, Pa.: Is there anything in the previous histories of the cases, specimens of which have been shown, to show that they presented the group of symptoms that Dr. Goldthwait has outlined?

Dr. C. L. Starr, Toronto, Can.: I should like to know whether there are not a series of these cases which give absolutely no symptoms.

Dr. John Dunlop, Washington, D. C.: I had a patient that presented a lumbo sacral ossification on one side. There was no sign of a joint present, and the symptoms came on after a slight accident on the opposite side from this bony ankylosis.

Dr. Z. B. Adams, Boston, Mass.: In some patients suspected of the presence of stone in the kidney or ureter, we found a broad transverse process. It probably impinged on either the sacrum or ilium of that side.

Dr. Comptom Reilly, Baltimore, Md.: Are there ever marked symptoms of nausea in these cases? I had a patient who showed an x-ray where the transverse process articulated with the sacrum and the iliac bone on that side. Some of her symptoms were marked pain at the menstrual periods, nausea for a long time, and pain in her back and limbs.

Dr. P. W. Nathan, New York City: The spine presents the most variable organ in our body; and it really is a transition organ, particularly in the lower portions of it, where we meet with most decided variations. Can Dr. Goldthwait show us that these anomalies are merely subject to pathological conditions? Lesions of this kind, which compress the nerves of this region, would give distinct neurological symptoms, which could be definitely diagnosed.

Dr. John Dunlop, Washington, D. C.: In the radiographs I noticed that the spine, in relation to the pelvis, did not seem to be symmetrical; and I should like to know what effect that would have on the studies with respect to the crest of the ilium and the top of the sacrum.

Dr. S. M. Cone, Baltimore, Md.: I worked on a case in the hospital, that had a temperature of 103°, with pain localized to the sacro iliac joint on one side. The x-ray showed an ossification on one side. I ordered a Wassermann test and a test for tuberculosis. It was a question whether it was ordinary infectious osteomyelitis. I should like to know whether any acute infection, syphilis or tuberculosis, could be an interpretation of some of these cases. The temperature continued for a week. Of course it is possible that some spinal affection is at the basis of the trouble.

Dr. A. H. Freiberg, Cincinnati, Ohio: I had a young woman referred to me because of an intense sciatica, associated with decided asymmetrical position of the back. She had been pronounced as having all sorts of diseases. A careful x-ray plate showed lumbo sacral transverse process. It appeared to me that a bony overgrowth was probably responsible for the pain. I undertook the removal of the bony process, which was a very difficult operation; but I succeeded in relieving the patient completely. I should like to ask whether there is a mechanical method of handling such patients, which would render such an operation as I performed unnecessary.

Dr. H. P. Galloway, Winnipeg, Can.: I should like to put on record a similar case to that of Dr. Freiberg. The patient suffered from mild sciatica for a number of years. The x-ray showed a spur on the transverse process. I recommended removal and carried the operation out. She never had any symptoms of sciatica afterwards.

Dr. Goldthwait: The specimens were all taken from bodies that I had dissected. The x-rays are from my own clinic, and I can give you the histories of them. Paraplegia seems to me a thing that must be reckoned with. Dr. Nathan spoke of the cases as being due to cauda equina pressure. Those that I showed are not simply the cauda equina but are the roots which make up the different plexuses. Dr. Starr asked whether patients with this condition do not go about without showing symptoms. I, myself, did not know that I had a peculiar formation of the transverse process of my last lumbar vertebra until last winter. With regard to treatment: Recognizing these symptoms as being due to acquired conditions on top of a congenital malformation, the problem is to restore the condition to what it would be normally, or was in early life. You must balance the individual so that the processes are relieved of strain and irritation. If the pressure is all on one side and is distorting the spine, the patients can be relieved much less frequently, I think, than I supposed at first. Not only are the nerves low down at the lumbo sacral joint pressed upon, but also, by the processes' settling down, you may get a pressure on the nerve in the upper part of the lumbar spine. Dr. Reilly asked whether this condition will cause nausea or not. I do not know. Dr. Nathan asked as to my proof that these anomalies are pathological. I did not claim any more than that they are there. It is for you to decide whether they are important or not. A lumbo sacral joint is subject to all the diseases that any other joint is subject to.

SPONTANEOUS GANGRENE AND ALLIED CONDITIONS IN ORTHOPEDIC SURGERY.

Dr. W. G. Stern, Cleveland: Spontaneous gangrene, Raynaud's disease, erythromelalgia, akro-

cyanosis, and intermittent claudication are allied conditions, and are probably due to similar causes. Of 14 cases here reported, only 5 were seen by the general surgeon, and that late in the progress of the disease, after gangrene had set in, for the purpose of amputation. Three of these cases were transferred by the orthopedist to the general surgical service. Ten of the 14 cases were referred to the orthopedist early in the progress of the disease, on account of pain and discomfort in the feet and legs upon walking—most of them under the impression that the condition was due to flat-foot. Seven cases had some degree of flat-foot, and several had been treated for the same with plates and exercises. One case had been held to be a sarcoma of the tarsus, while another was suspected of being a tuberculosis of the ankle joint.

DISCUSSION.

DR. L. W. ELY, Denver, Col.: I should like to speak of the value of rest. Many years ago I had a case in an adult, who had lost one foot by amputation for gangrene, beginning above the toe and running to just above the knee. The other leg presented a well-marked case of intermittent claudication. The pulse was absent. It ceased about the middle of the leg. He had a well-marked phlebitis, and treatment was without effect. He was put on the flat of his back for six or eight months, and his symptoms all disappeared. He still has his leg and foot. Without rest, he would have lost the limb.

DR. H. A. WILSON, Philadelphia, Pa.: I should like to ask Dr. Stern whether any of the cases gave a history of the onset's being a frost bite, with an exaggeration of the condition in the winter, and an amelioration in the summer. Those patients who apparently had exaggeration of the symptoms in the winter were relieved by applied warmth and complete rest; the circulation recovered, the gangrene disappeared, and there was an arrest in the condition, with a slight recurrence the following winter.

DR. Z. B. ADAMS, Boston, Mass.: I wonder whether Dr. Stern examined his patients for the presence of a pylonidal sinus, which, from my observation of two cases, I should have expected to find.

DR. C. F. PAINTER, Boston, Mass.: Until I learned to associate with this condition etiologically the presence of various toxic conditions connected with narcotics, I did not understand the etiology of these cases very well. There seem to be two points connected with them—the fact that they occur largely in people who are fundamentally of a weak or unstable nervous system, and in those who give a history of having used tobacco or some other toxic material to excess.

SYMPOSIUM ON SCOLIOSIS: THE TREATMENT OF STRUCTURAL SCOLIOSIS.

DR. A. H. FREIBERG, Cincinnati: Correction jackets for scoliosis have been in use intermittently for over a generation. They failed of their object chiefly for two reasons: first, because the muscle factor was ignored; and second, because the proper mechanical principles were not observed in making the correction. These principles are still ignored in many of the procedures that have lately been brought forward. The mechanics of correcting the torsion and the consequent chest deformity are a most important feature. The apparatus exhibited shows the application of these principles, but the possibility of maintaining the corrective effect has not yet been demonstrated.

THE TREATMENT OF SCOLIOSIS (FIXED TYPE) BY PLASTER, SUPPLEMENTED BY PNEUMATIC PRESSURE.

DR. JOHN PRENTISS LORD, Lincoln, Neb.: In the treatment of exaggerated scoliosis of the fixed type it has been my experience that frequent forced corrections under plaster have rendered the best net results. The pressure surfaces are greater in casts than in braces, and may, therefore, be made to exert a greater corrective force, and thereby maintain a maximum of efficiency.

To make them more sanitary, they have been fenestrated to the largest possible extent, especially over concavities in the chest. To avoid chest constriction and atrophy of the pectorals the cast has been cut out extensively to allow of free expansion of the upper chest over the upper lateral concave portion. The breasts of females are made free by ample fenestra. To supplement the efficiency of these casts and to add more pressure over the protruding ribs, use the air bags made from sections of the inner tubes of automobile tires. The valve stem of a bicycle tire is inserted in the edge of the flattened tube. The cut ends of these sections are cemented and vulcanized. Discarded tubes of good quality make admirable pneumatic cushions which are very durable. By these means a follow-up effect is secured. The French have also used the air bags.

A JACKET FOR THE TREATMENT OF SCOLIOSIS, WHICH PERMITS THE UTILIZATION OF THE RESPIRATION FOR CORRECTION BY WINDOWS AND BENDING, *i.e.* OVER-CORRECTION, IN DIFFERENT DIRECTIONS, IN DIFFERENT SEGMENTS OF THE SPINE.

DR. MICHAEL HOKE, Atlanta, Ga.: I have tried to devise a joint permitting universal motion which, at the same time, would be of such construction that it could be locked securely in any position in which it is placed. It is merely a matter of ingenuity to apply a series of joints to the particular individual and the particular jacket in which one wants to use them. Of course I do not claim that this particular jacket is as effective as plaster, but there are times when circumstances arise preventing the use of plaster.

THE TREATMENT OF ROTO-LATERAL CURVATURE OF THE SPINE.

DR. B. E. MCKENZIE, Toronto: There are two essentially different and opposed methods of treatment: one, forcibly corrective and restrictive; the other, forcibly correctve, developmental and educative. The former, while correcting the deformity, fails to improve function; the latter is effective in bettering both form and function.

A NEW SCOLIOSOMETER.

DR. JAMES K. YOUNG, Philadelphia: I now present a new method of transferring the outline and tracing of scoliosis directly to tracing paper, a method that is simple, inexpensive and scientifically accurate.

SOME MATERIAL TO BE USED IN PADDING PLASTER JACKETS.

Dr. C. F. Painter, Boston. This material is used for the protection of the body from the pressure of the plaster. The ordinary sheet-wadding that we all use is packed up with a gauze bandage, in order to lessen the difficulties that one occasionally meets with in the application of sheet-wadding, which tends to slip.

DISCUSSION.

Dr. Joel E. Goldthwait, Boston: The most embarrassing question asked the chiefs of the different clinics was regarding what they accomplished with reference to the rotation in this condition. I have been able to do very little with it. Abbott has shown that by putting the patient in the position of flexion, one relieves the locking of the articular processes and puts the spine in the position of greatest flexibility. It then becomes possible to unrotate the spine, so that correction can be made. If the shoulders are dropped and the body bent to the side, one does not have a true rotation. If the shoulder is raised and the same position maintained, the body of the vertebra is rotated.

Dr. L. J. Porter, Chicago: I got, from my visit to Abbott, the idea that we had been trying to correct the deformity and had failed because, when we locked the spine, there was no possibility of rotating the vertebrae. The only possibility of correction in this position was in little children, whose ribs were so soft that they could be twisted back into place. Dr. Abbott did in three or four months what I could not do in years.

Dr. Clarence L. Starr, Toronto: In our jacket, carried over the shoulder, we had a paralysis of the arm from the pressure. This paralysis came on three weeks after the application of the jacket, which was not tight. It came on just as does the ordinary crutch palsy, and cleared up in five or six months.

Dr. Prescott LeBreton, Buffalo: One point not touched upon, except by the last speaker, refers to what might be the harmful effects of the treatment. There might be cases of lung trouble or of flexed uterus, and I should like to know whether any harm would come from that position.

Dr. F. E. Peckham, Providence: If such work had been slowly led up to by previous work in that direction, and the medical mind had been prepared by a logical sequence of events for this ultimate result, it would have all seemed easy and natural; but the idea apparently flashed across Dr. Abbott's mind, and the trick was done. The result came first, and the explanation afterwards.

Dr. C. D. Napier, Brooklyn: In following out the padding posteriorly over the kyphosis, and in trying to correct the rotation from posteriorly, I was disappointed in the result. More recently I have tried to follow out the idea of padding anteriorly on the ribs. It makes a wonderful difference in the amount of correction obtained.

Dr. H. Augustus Wilson, Philadelphia: I should like these gentlemen who have seen Dr. Abbott and his work to tell us something about what is done as to changing the shape of the bones. I feel that the results stated here today are of a type to make us ask what will prevent the recurrence of the deformity.

Dr. Porter: Dr. Wilson wants to know what is going to happen when the jacket is removed. The patient is put into another plaster jacket, like the first made, and kept there.

Dr. B. A. Twinch, Newark: As I understand Dr. Abbott's method, he applies over-correction, what we are all relying on in every other deformity except curvatures, in which we only correct. We do not think of just merely correcting bow-legs, but we over-correct them.

Dr. Z. B. Adams, Boston: When the vertebrae have swung around onto the side of the convexity in the back, in the dorsal region, and have become wedge-shaped, and when the ligaments on the side of the vertebrae have contracted, I do not see how Dr. Abbott can untwist these vertebrae and bring them around into position or over-position.

Dr. Carl Herman Bucholz, Boston: I want to report our present scheme of recording scoliosis. In order to make it uniform and get the patient in the same position, Dr. Osgood has constructed a frame, with cross pieces and padding, to hold the patient in the same position each time. It makes an unnatural position, but it can be taken each time. We use the stereoscopic photograph, which gives a beautiful view.

Dr. W. E. Blodgett, Detroit. I never understood before why the vertebrae rotate so in lateral curvature. The explanation is that the raising of the ribs on the convex side produces an increased distance between the costal attachments at the sternum and those at the vertebrae. Of course, as the power of the sternum is limited, there is a tendency to rotate the vertebrae in the way in which they rotate, so that there is this rotary deformity.

Dr. N. M. Shaffer, New York City: Some years ago I claimed that we should measure our deformities, just as the ophthalmologist measures the functions of the eye. Lateral curvature is a question of growth. I compared it to torticollis, in which we get the same kind of deformities in the cervical vertebrae that we get in the dorsal vertebrae in lateral curvature. I want also to place on record a new cause for lateral curvature. In one case of mine the lateral curvature was due to the fusion of the ninth and tenth and the tenth and eleventh ribs together, two inches from the vertebral column. The fusion was removed and the child has gone on nicely.

Dr. Walter Truslow, Brooklyn: The x-ray picture is the final court of appeal, but it is sometimes difficult to get the x-ray taken.

Dr. Adams: Fusion of the ribs, *per se*, does not cause scoliosis. In an examination of specimens in our museum at Boston, I found that there are some that show two ribs fused together with no scoliosis whatever.

Dr. R. T. Taylor, Baltimore: After the appearance of Dr. Abbott's article, without having suitable apparatus, we tried, by means of posture and strength, to correct the deformity. We had the patient stand with the left hand on the top of the table and the right on the leg of the table, and regulated the position according as the amount of curvature improved. The progress was much more rapid than what we had made previously.

Dr. Starr: In connection with the bending position and elevation of the arm, my colleague and I found that we made a marked change in the contour by putting a lift under the foot of the hip that was convex, thus tilting the pelvis.

(To be continued.)

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THE DEATH OF CHARLES THE SECOND.

ON February 6, 1685, died Charles the Second of England, the Merry Monarch

"Who never said a foolish thing
And never did a wise one."

Singularly enough there has been preserved a more complete account of the medical details of his final sickness than in the case of any other British sovereign prior to the nineteenth century. Our most compendious source of information on this subject is a book on "The Last Days of Charles II," written by a physician, Dr. Raymond Crawfurd, and published in 1909 at the Clarendon Press, Oxford. Dr. Crawfurd diligently compared all the documents bearing on the case, and his work presents an impartial and authoritative historic record.

Charles II had led an adventurous, dissipated and intemperate life, but apart from a chronic pleurisy, possibly of tuberculous origin, his health had been in the main good. In the fall of 1684, in the fifty-fourth year of his age, he suffered from a protracted attack of gout, due no doubt to his excesses in eating and drinking: but from this he completely recovered and was apparently restored to his usual health.

The evening of Sunday, Feb. 1, 1685, as Evelyn vividly records in his diary, Charles spent in riotous pleasure, surrounded by a brilliant galaxy of the favorites and gallants of his court. At eight o'clock the next morning, Candlemas Day, Feb. 2, the King "having just left his bed, was walking about quietly in his chamber, when he felt some unusual disturbance in his brain, which was soon followed by loss of speech and convulsions of some violence." He "fell back into the arms of Lord Ailesbury, who was standing close beside him." Edmund King, one of the royal physicians, who happened to be present, promptly bled the unconscious monarch of a pint of blood from a vein in the right arm, and summoned the other medical attendants, upon whose arrival a consultation was held. The following statement of the action resulting from their deliberations is taken from Dr. Crawfurd's translation of the contemporary official account of the King's illness, drawn up in Latin by Sir Charles Scarburgh, the senior consultant.

"They prescribed three cupping-glasses to be applied to his shoulders, to be quickly followed by scarification deep enough to effect a fuller and more vigorous revulsion, and in this manner about eight ounces of blood were withdrawn. Within a few moments after this, so as to free his stomach of all impurities, and by the same action to rid his whole nervous system of anything harmful to it, they administered an emetic. . . and as only a small part of this was taken, so that their endeavor might not be altogether frustrated, they added one drachm of white vitriol dissolved in compound paeony water. Soon afterwards they gave as well one drachm of two-blend pills, likewise dissolved in paeony water, and this so as to drain away the humours more speedily by his nether channels. Further, so as to accelerate the operation of that purgative, they supplemented it with an enema." After an hour, "they repeated the clyster, with the addition of 2 ounces of syrup of buckthorn, 4 ounces of emetic wine, and 2 drachms of rock salt; but as these were slow in operation, they made still another effort to attain the same end with yet more purgatives. Over and above this, so as to leave no stone unturned, blistering agents were applied all over his head, after his hair had been shaved."

As a result, or perhaps in spite, of this drastic therapeusis, the poor King in about two hours recovered consciousness. He was not left in peace, however. His physicians held repeated consultations, and continued to prescribe blisters, cathartics, emetics, purgatives, sneezing-powders, and venesection. This polypharmacy continued through Feb. 3; and it appears that his majesty evinced his Christianity in no more genuine fashion than in the serene and cheerful fortitude with which he endured these horrors of heroic medieval medication. On Feb. 4 the convulsions recurred. On Feb. 5, thinking that the King might perhaps have the intermittent

fever, then prevalent in London, his physicians added Peruvian bark to his already formidable list of medicines. Though his strength failed rapidly and the convulsions became more frequent, Charles retained complete consciousness, received the last sacrament of the Church, and made his famous apology to his courtiers for the unconscionable time he took in dying. On Friday morning, Feb. 6, "he was seized with breathlessness; he was again bled and heart tonics were administered. At half past eight his speech began to fail"; and with the farewell injunction, "Take care of poor Nell," he became unconscious, "and shortly before noon he quietly passed away."

At the autopsy, held on Feb. 7, the following conditions, as recorded in the protocol, were found: "On the surface of the brain the veins and arteries were unduly full. All the cerebral ventricles were filled with a kind of serous matter, and the substance of the brain itself was quite soaked with similar fluid. On the right side the lungs and pleura were firmly adherent to the chest wall. No fault whatever could be found with the substance of the lungs, but they were charged with blood. The heart was large and firm, and quite free from malformation in every part. In the depths of the belly there was nothing unnatural, except that the liver was inclined to be livid in colour, perhaps because of the abundance of blood in it, with which the kidneys and spleen were also engorged."

In the absence of bacteriology, neither the anatomic nor the clinical diagnosis of his disease is positive. Both the pathology and the case history, however, seem strongly to suggest that it was in reality an acute meningitis, which finally killed the cleverest and most dissolute man who ever sat upon the English throne.

INTRATRACHEAL INSUFFLATION IN ANESTHESIA.

The practical value of experimental research in connection with medical progress was excellently illustrated in the elaboration and development by Meltzer and Auer[1] of the method of artificial respiration by intratracheal insufflation. With a soft rubber catheter, air, under a pressure of about 15 mm. of mercury, is carried directly to the bifurcation of the trachea. It returns from here between the catheter and the tracheal walls to the exterior. For a human adult the most generally serviceable catheter is a 23 F., although the exact size does not matter within wide limits. The air delivered thus at the bifurcation of the trachea and returning alongside the catheter, creates air currents in the bronchi which greatly facilitate diffusion through the alveoli of the lungs. Meltzer and Auer have demonstrated that efficient aeration can be maintained indefinitely by this method.

In two important fields this method met immediate recognition and has stood the test of experience. In accidents attended by stoppage of the respiratory function, such as electrical shock, drowning, etc., the older mechanical methods of artificial respiration were but meagerly satisfactory. The prone pressure method of Shafer was perhaps the best and with the least risk of fracturing ribs or rupturing the liver, gave fair aeration of the lungs. Intratracheal insufflation requires the use of a comparatively simple apparatus, but its results are so satisfactory that such an apparatus in portable form and with trained attendants might well be made an essential feature of still more emergency relief stations where succor may be required for victims of drowning, electrical shock, mining accidents, and others attended with suspended respiration.

The other great field of clinical usefulness for intratracheal insufflation is in the introduction and maintenance of surgical anesthesia in selected cases. Its particular advantages are for intrathoracic work, and for operations on the head, neck and oral cavity. Cotton and Boothby in the current issue of the *Annals of Surgery*[2] discuss the application of this method to surgical anesthesia. They point out that if the thorax is opened, the resistance to the outflow of air back along the catheter is sufficient to maintain moderate expansion of the lungs. From the surgical standpoint full expansion is undesirable, and in any case is unnecessary, and it may be dangerous as there is a risk of traumatic emphysema from over-distension. The authors recommend Meltzer's expedient in cases where, for any reason the patient seems under-oxygenated, of interrupting the current of air through the catheter for a few seconds and allowing the lungs to fully collapse. This, however, is only occasionally necessary.

After an intrathoracic operation, pneumothorax is obviated by the simple manoeuver of making gentle pressure on the trachea while the thorax is being closed, thus increasing the resistance to the outflow of air and expanding the lungs out full to the chest wall. It is important

to maintain a free outlet for the air through the mouth, as if the tongue drops back, for instance, it may cause sufficient resistance to the outflowing air to force it into the esophagus and stomach.

A more serious event is glottic spasm due to the irritation of the catheter in the larynx and resulting in the vocal cords constricting more or less tightly about the catheter and cutting off the egress of the air.

This results from incomplete anesthetization and is controlled by intermittently interrupting the air supply, causing the lungs to collapse fully each time, and by increasing the amount of ether vapor supplied. Cotton and Boothby declare it important to provide a mercury safety valve, by means of which the intrathoracic air pressure is prevented from exceeding 15 mm. of mercury. This avoids the danger of overdistending the lungs, if through glottic spasm or other reason, the egress of air is restricted.

In view of the ease of maintaining full aeration of the lungs by intratracheal insufflation, there is danger of over-oxygenation of the blood, resulting in a condition of acapnia or absence of carbon dioxide. This may easily produce a condition practically identical with surgical shock, if the teachings of Henderson[3] are to be accepted. It will be recalled that Henderson assigns the cause of shock to hemic acapnia, and to prevent this situation arising in intratracheal insufflation, the volume of air or combined gases should be just enough so that the patient will breathe or attempt to make respiratory movements in practically the normal manner.

Cotton and Boothby conclude that intratracheal insufflation is the only method that absolutely provides for sufficient aeration of the lungs, regardless of the respiratory movements of the patient, and that if properly administered and safeguarded, it can be rendered free from intrinsic danger. Consequently this method of administering anesthetics is indicated in operations which will interfere in any way with the ability of the patient to respire voluntarily. They consider that ether vapor with air, supplied by a foot pump, is most advantageous for general use, although at times nitrous oxide with oxygen and minimal quantities of ether may be preferable.

Cotton and Boothby furnish an interesting history of the development of the idea of intratracheal insufflation and include a good bibliography of the subject. The application of this method to anesthesia marks a distinct advance in the surgery of the respiratory tract and thorax, and renders obsolete the cumbersome and prohibitively expensive differential pressure chambers so recently elaborated. Careful clinical observation and animal experimentation are needed to work out the very best methods of use and to determine more definitely the clinical relation between acapnia, over-oxygenation in anesthesia and shock.

[1] Meltzer and Auer: Respiration without Respiratory Movements. Zeitschr. f. Phys., vol. xxiii, pp. 210 and 442. 1909.
Ibid.: Continuous Respiration without Respiratory Movements. Jour. Exp. Med., vol. xi, p. 622. 1909.
[2] Cotton, F. J., and Boothby, W. M.: Intratracheal Insufflation Anesthesia. Annals of Surgery. Jan., 1913, p. 43.
[3] Henderson, Yandell: Acapnia and Shock. (A series of articles with complete literature.) Am. Jour. of Phys. 1908-1911.

DIET KITCHENS.

THE fortieth annual report of the New York Diet Kitchen Association is most interesting, as will presently be manifest; and it is important by reason of the incentive to like activity which other communities will find in it. Mrs. Henry Villard, the president of this beneficent institution, observes that the record of its work during the two score years past would fill many volumes. It began at a time when, by reason of New York's increase in population, philanthropy had to redouble its efforts to save the lives of the poor suffering from such diseases (especially tuberculosis) as were fostered by the multiplication of unsanitary, sunless and dirty tenements; and it has since advanced steadily in accordance with modern methods of coping with such conditions, so unfortunate for the sufferers, and so dangerous for the community at large.

At first the kitchen of this Association furnished food cost-free to the sick poor, on the presentation of requisitions signed by dispensary doctors, who recognized that medication alone would not cure malnutrition. Beef tea was in great demand, as well as cereals and milk; but finally milk was deemed most necessary, wherefore the kitchens became centres for the distribution of the purest attainable milk, the high demands of the Department of Health being ever the standard. The difficulty of rendering aid only to those too poor to pay for the milk led the association to act upon medical advice and to charge six cents—the cost price of the milk per quart.

When the new world-wide propaganda against tuberculosis began, and when at about the same time the Health Department took steps to reduce infant mortality (which comes about so largely

by reason of low grade milk) the poor came to these diet kitchens in overwhelming numbers, yet the sufferers from the diseases mentioned then represented (as they do also today) but fifty per cent. of the Association's beneficiaries; and it is said that this is the only association which ministers to all sick people, no matter what may be the cause of their suffering. Eighty charitable societies, who were co-operating with the Association, were then asked to provide the cost price of the milk used by such patients they sent to it as were too poor to pay even a small sum; and this request was for the most part acceded to. Even so, however, there was a large deficit, which had to be met by appeals to the public.

And yet milk distribution is the least of the Association's work; the salient feature even in the beginning, has been educational. The aim has ever been for prevention rather than cure. The kitchen matrons have always visited the homes of the patients, in order to render every possible help to them; besides, nurses have been provided for the nine kitchens, thereby greatly increasing the running expenses. In the summer season the Health Department assigns to these diet kitchens nurses for special work among babies; but as their services are not given in the winter the Association recognizes the moral obligation itself to carry on the work. Nor do its nurses care for babies alone; they work for the betterment of every member of the family. "Indeed," observes Mrs. Villard, "they are ministering angels in the neighborhood, are regarded as such and appealed to on all occasions." They assist at the kitchen conferences, when the babies are regularly examined and weighed, the formulae prescribed and prepared, and the mothers themselves taught how to modify the milk at home as well as in the kitchen.

Expectant mothers keep well and are often able to nurse their babies because they are strengthened by the Association's milk. And tuberculosis patients are taught the prophylaxis of this disease, and the measures essential to its cure. To such sufferers eggs are also either given, or sold for a nominal sum.

During the past year 1,550,289 quarts of pure milk were dispensed below cost (for what is now asked no longer covers the increased cost price of the milk); $76,619.86 were expended for the milk, the cost of it above receipts being $11,902.11. It cost $13,297.07 to maintain the nine milk kitchens (including salaries, rents, fuel, light, repairs, furniture and incidentals); the expenses in excess of receipts were $30,678.11. In the two summers past 2,310 babies were under the care of the nine stations, *with but twelve recorded deaths* from digestive disorders.

An instructive fact is that this Association is represented by its able superintendent, Miss M. L. Daniels, in the Babies' Welfare Association, a well-organized clearing house, having for its object the saving of infant life through the united help of all the various agencies at work for this purpose.

RECOMMENDATION FOR CHANGE IN IMMIGRATION LAW.

On November 16, 1912, a conference was held in New York City of social workers, alienists, and the most important scientific bodies in the the United States which deal with the prevention and treatment of insanity. Its purpose was to consider the most practical methods of excluding insane and mentally deficient immigrants.

The conference after careful deliberation unanimously recommended certain amendments to the present immigration law. It suggested that a penalty of at least $100.00 be attached to the importation by any steamship company of a case of insanity or mental defectiveness, which could have been recognized by competent examination before embarking. Also, commissioned officers of the United States Public Health Service should be detailed to vessels bringing immigrants to the United States, for the purpose of examining and observing the immigrants in transit, with particular reference to the detection of mental abnormalities. Another provision recomends that a sufficient number of medical officers, who have had special training in the detection of mental impairment, be stationed always at Ellis Island and other large ports, and that these officers shall at all times be provided with suitable facilities for their work, including the exclusive services of interpreters. It is urged that insane and mentally defective aliens who become public charges within five years, or gain admission to the country unlawfully shall be deported, unless their disability or disease is shown to depend on causes arising subsequent to landing. The final provision is for suitable care and attendance for cases under-

going deportation to insure humane and proper treatment.

The conference declared itself in favor of any measures which would make possible a medical examination of alien immigrants before foreign embarkation.

RENEWAL OF THE BALKAN WAR.

FOLLOWING the breaking off of peace negotiations in London, and the subsequent failure of Turkey to comply with the demands contained in the Balkan ultimatum, the armistice between the two parties was formally denounced by the allies on Jan. 30 at Constantinople. Meantime the situation has been further complicated by a partial political revolution among the Ottomans, in which the former Turkish commander-in-chief was killed, and which resulted in placing in power the Young Turks, who are bent on prosecuting the war more actively. On Monday of this week, Feb. 3, hostilities were officially resumed, though as yet there has been no serious fighting. The siege of Adrianople and of Tschatalja remains the first objective of the Bulgars.

With the renewal of war the need for medical relief becomes still more pressing. On Jan. 27 the Constantinople chapter of the American Red Cross Society sent to the national headquarters at Washington, D. C., an urgent appeal for further assistance. The sufferings of non-combatants are also acute.

"Seventy-five per cent. of the refugees are women and children. Worn out by their hardships, bereavements, exposure and starvation, many have died in the past two months, and unless these distressed people can be helped through the winter, the mortality among them will be appalling.

"Large sums must be immediately obtained from Europe and America if these people are not to starve."

The total sum thus far subscribed in Massachusetts for the Red Cross Fund now amounts to $8,002.89.

MEDICAL NOTES.

THE WELFARE OF INFANCY.—Their Majesties the King and Queen have graciously lent their patronage to the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy. The foundation of this society is the outcome of a public meeting held last July at the Caxton Hall under the presidency of Mr. John Burns. It represents a triple alliance between the National Conferences on Infant Mortality, the National League for Physical Education and Improvement and its Department, the Association of Infant Consultations and Schools for Mothers, and the Women's National Health Association of Ireland.

Mr. John Burns is the president of the new Association, while Sir Thomas Barlow is the first chairman of its executive committee. The latter consists of 12 representatives of statutory administrative authorities, 12 medical officers of health, 12 members of the medical profession actively engaged in clinical practice, and 12 representatives of various societies actually engaged in carrying on work for the welfare of mothers and babies. It is confidently anticipated that local authorities and their medical officers of health will continue that active support and help in this great work which they have so readily given to the previous conferences. As an earnest of the important work the newly constituted society proposes to carry on, it has already arranged to hold in London a post-graduate course on the feeding and care of infants. This course, which fulfils a long-felt want, will be held in London from the 6th to 15th of January next.

The executive committee is now actively engaged in organizing an English-speaking Conference on Infant Mortality, which is to be held in London on August 4 and 5 next, a date which immediately precedes the International Medical Congress. In addition to expert authorities in England, delegates from the Overseas Dominions and America will take part in the Conference, and it has been decided to hold it in two sections so that the subjects included in the program may be dealt with both from the administrative and medical sides.

Further particulars with respect to the Association, membership in which is open to all who sympathize, or of the post-graduate course and the Conference may be obtained from Miss Halford, Secretary to the Association, 4 Tavistock Square, London, W. C.

FEDERATION OF STATE MEDICAL BOARDS.—The Federation of State Medical Boards will hold its annual meeting at the Congress Hotel, Chicago, on Monday, Feb. 25, 1913. Essayists, eminently qualified, will prepare papers upon the following subjects: "Is Universal Reciprocity to be Desired?", "Should Medical Boards Require One or More Years of College Work Preliminary to

the Study of Medicine?", "Should One or More Years in a Hospital be Required for Admission to the Examination for Medical Licensure?" "Rules and Regulations Governing Examinations for Medical Licensure," "Qualification of Examiners," "What Fee Should be Required for the Examination?", "Benefit of Having a Single Federation of State Medical Boards and Method of State Board Record Keeping," "Means of Keeping Politics Out of State Board Affairs."

These topics are of practical and vital interest to medical colleges, medical examining boards, the profession at large and the public. Those contributing the papers on these subjects come with years of experience. An earnest and cordial invitation to this meeting is extended to all members of State Medical Examining and Licensing Boards, teachers in medical schools, colleges and universities, delegates to the Council on Medical Education of the A. M. A., to the Association of American Medical Colleges, and to all others interested in securing the best results in medical education and legislation.

The officers of the Federation are: Arthur B. Brown, M.D., President, New Orleans; George H. Matson, M.D., Secretary-Treasurer, Coumbus (State House), Ohio; James A. Duncan, M.D., Chairman Executive Committee, Toledo.

MORBIDITY REPORTS.—At the Tenth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service, held in Washington, June 1, 1912, a resolution was submitted by the Conference Committee on Morbidity Reports and adopted by the conference. The object of this resolution was to furnish a means whereby sanitary authorities might have current knowledge of the prevalence of disease and the occurrence of epidemics.

The resolution as adopted provides for the telegraphic report to the Surgeon General of the Public Health Service of the occurrence of cases of certain diseases of special importance; also telegraphic reports of outbreaks and epidemics of certain diseases, the telegrams in each instance to be followed by a report by mail. Provision is also made for monthly reports of notifiable diseases and for special reports of outbreaks of smallpox in which fatal cases occur.

Blanks have been prepared for: (1) The reports to be mailed subsequent to the telegraphic report of the occurrence of cholera, typhus fever, yellow fever, plague, and Rocky Mountain spotted (or tick) fever. (2) The regular monthly reports. (3) Reports of outbreaks of smallpox with fatal cases.

The telegraphic reports necessarily cannot be made on blanks, nor have blanks been prepared for the reports to be mailed subsequent to the telegraphic report of the occurrence in a locality of an unusual outbreak or sudden increase in the number of cases of smallpox, typhoid fever, scarlet fever, epidemic poliomyelitis, diphtheria, and epidemic cerebrospinal meningitis. These reports, therefore, are, for the present, to be made in letter form.

APPOINTMENT OF DR. ROSS.—Major Sir Ronald Ross, F. R. S., who is at present professor of tropical sanitation at the University of Liverpool, has recently been appointed physician for tropical diseases to King's College Hospital, London, where he will assume his new duties next fall.

DR. MINOT ON MODERN PROBLEMS OF BIOLOGY.—During the week of Dec. 16 to 21, Dr. Charles Sedgwick Minot, professor of comparative anatomy at the Harvard Medical School, delivered before the University of Jena, Germany, a series of six lectures on "Modern Problems of Biology." The special topics were: the new cell doctrine; cytomorphosis; the doctrine of immortality; the development of death; the determination of sex; and the conception of life, These lectures, which were in German, will shortly be published. Dr. Minot is at present serving as Harvard exchange professor at the University of Berlin.

BOSTON AND NEW ENGLAND.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Jan. 25, 1913, is 230, against 233 the corresponding week last year, showing a decrease of 3 deaths, and making the death rate for the week 16.31. Of this number 128 were males and 102 were females; 225 were white and 5 colored; 137 were born in the United States, 89 in foreign countries, and 4 unknown; 42 were of American parentage, 149 of foreign parentage, and 39 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 51 cases and 3 deaths; scarlatina, 40 cases and 2 deaths; typhoid fever,

3 cases and 0 deaths; measles, 155 cases and 0 deaths; tuberculosis, 61 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 1, heart disease 35, bronchitis 4. There were 17 deaths from violent causes. The number of children who died under one year was 49; the number under five years 56. The number of persons who died over sixty years of age was 68. The deaths in hospitals and public institutions were 97.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Jan. 28, 1913, are: Diphtheria, 59; scarlatina, 40; typhoid fever, 6; measles, 176; smallpox, 1; tuberculosis, 61. The death-rate of the reported deaths for the week was 15.88.

NEW YORK.

NOTIFICATION OF VENEREAL DISEASE.—The action of the City Health Department in requiring the superintendents of all public institutions, and requesting all physicians in private practice, to report all cases of venereal disease coming under observation, together with the source of infection, if obtainable, is meeting with decided disfavor and opposition from the medical profession. At the last meeting of the Medical Association of the Greater City of New York resolutions were unanimously adopted declaring that this action is an undesirable and useless invasion of the most confidential relationship between physician and patient. The resolutions go on to say: "The mere compilation of statistics in venereal diseases is of no value, and the attempt to make it in this manner is a direct incentive to falsification and disobedience to the law. The measure is of value only as a step toward the relegation of these cases to the Board of Health, and its ultimate effect will be to promote self-medication and quackery." The resolutions also provide for the appointment of a committee to arrange suitable action in this matter, and report at the next meeting. In presenting these resolutions Dr. William S. Gottheil, one of the leading dermatologists of the city, made the statement that the Health Department had intended establishing stations in various localities where patients suffering from venereal diseases could receive free treatment, and had been prevented from doing this only by its failure to obtain an appropriation of $50,000 which it had asked for the purpose. Action, in the way of protest, similar to that by the Association is now being taken by other medical bodies.

AMERICAN MUSEUM OF SAFETY.—The annual exercises of the American Museum of Safety, with the award of four gold medals, were held on Jan. 23. The awards were as follows: The Scientific American medal, to the Draeger Oxygen Apparatus Company, for the pulmotor as a life-saving agency; the Travelers' Insurance Company medal, to the New York Edison Company, for persistent effort and success in minimizing the dangers of the electric power plant; the Louis Livingston Seaman medal, presented by Dr. L. L. Seaman of New York, to the National Cash Register Company, for achievement in securing factory hygiene and sanitation; the Rathenau medal, placed at the disposal of the museum by the Allgemeine Electricitaets Gesellschaft, Berlin, for annual reward, to Thomas A. Edison, for achievements in electrical devices to ensure the safety of the lives of workers in atmospheres charged with combustible gas. It was announced that a fifth gold medal had been founded by Mrs. E. H. Harriman, as a memorial to her husband, to be awarded anually to the steam railroad making the best record in accident prevention and industrial hygiene. The annual report of the president of the museum, Arthur Williams, gave some account of the great progress made of late in the development of safety appliances, and among those who spoke were Andrew Carnegie and Dr. George F. Kunz, chairman of the committee on plan and scope.

POSTPONED HARVEY LECTURE.—The postponed lecture by Major F. F. Russell on "The Prevention of Typhoid Fever" will take place on Feb. 8, 1913, at the New York Academy of Medicine, at 8.30 p. m.

NEW YORK NEUROLOGICAL SOCIETY.—Dr. Smith Ely Jelliffe has been elected president of the New York Neurological Society for the year 1913.

MOUNT SINAI HOSPITAL.—Report on Jan. 28 states that already $650,000 have been raised towards the sum of $1,350,000, which it is estimated will be needed for the projected alteration and extension of the buildings of the Mount Sinai Hospital.

Society for the Advancement of Clinical Study.—A society for the advancement of clinical study has recently been organized in New York City, the purpose of which is to maintain a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West 43rd Street, in charge of a special clerk, who will be on duty between the hours of nine and six to answer all telephone inquiries. The bulletin board will consist of two sections, on one of which will be posted, month by month, the regular clinics, medical and surgical, and also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which as far as possible will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations and operators or clinicians, an opportunity to obtain the desired end and with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York City will be made more accessible to those who may desire to make use of them.

Conservation of Human Wealth.—A portion of Governor Sulzer's first message, which was sent to the legislature on the day of his inauguration, January 1, was devoted to some of the methods for the conservation of what he terms "our human wealth." "We must try," he says, "to work out practical legislation that will apply to our social ideals and views of industrial progress to secure for our men, women and children the greatest possible reserve of physical and mental force. I hold it to be self-evident that no industry has the right to sacrifice human life for its profit, but that just as each industry must reckon its cost of production the material waste, so it should also count as a part of the cost of production the human waste which it employs. Many of our States have enacted workmen's compensation or insurance laws. . . The workers themselves have not always been able to secure such compensation for themselves. Particularly has this been true of women and children, in whom the State should take a special interest. To secure for those less accustomed to the competitive struggle the protection which other workers have won for themselves through organization, we should carefully consider the establishment of wage boards, with authority to fix a living wage for conditions of work, below which standards no industry should be allowed to continue its operations. Massachusetts has enacted such a law. Ohio recently adopted a constitutional amendment authorizing the legislature to do the same. For the welfare of the State child life must be protected. . . The work period must not be permitted to infringe on the formative and the maturing period. Compulsory educational laws and restrictions upon child labor properly enforced will secure to every child of the State its rightful heritage. . . Another type of legislation beneficial to the State, that aims to conserve human life and health, is that which requires the use of safety appliances and establishes safety standards. Human life is infinitely more valuable than the profit of material things. The State, for its own preservation, has the right to demand the use of safer and more hygienic methods, even if at greater cost of production to the employer. Occupational diseases should be studied, and the results of careful investigation embodied in laws to safeguard the health and the lives of the workers. Practical results of such legislation prove that these regulations are a good investment. . . Statistics prove that the welfare of the worker is indissolubly involved in permanent industrial progress. One of the most practical and permanent aids in conservation of human resources is the establishment of municipal museums of safety and government research and investigation, such as is carried on by the Federal Bureau of Mines. . . This study to safeguard the life, body and health of the worker is essential to true scientific and industrial progress."

Health Department at Columbia University.—In June, 1912, Dr. W. H. McCastline was appointed chief of the department of health and sanitation at Columbia University. The establishment of this department was in the nature of an experiment; and Dr. McCastline's first report, recently issued, seems to indicate that it has been a success. The aims of the department, outlined in the report, are as follows:

"First—To establish a basis of co-operation between the university and the hospitals and clinics of the city that stand ready to assist the

college in its effort to meet the emergencies arising within its jurisdiction.

"Second—To establish for the students a well appointed office on the campus where they may go for medical consultations and advice on all matters relative to health. These consultations are without charge to the students, making it possible for the men who are working their way through college to obtain as prompt and effective treatment as the men who can afford to consult their own physicians.

"Third—In order that the department may render the best services to the patients arrangements are being made by the university physician with specialists, to whom student patients may be referred, if necessary, for consultation or treatment.

"Fourth—The department will co-operate with the physicians of the neighborhood, assisting them in their problems with patients who are students at the university. Thus the practising physician has a means of obtaining facts regarding the life of his patient as a student. When he wishes to make recommendations affecting in any way his patient's routine life at college he may, if he wishes, first consult with the university physician to ascertain the feasibility of his proposed plan of treatment in relation to the adjustments which might be made within the college for the student's best interest. Many of our students are under the care of their home physicians, and it is the policy of this new department to co-operate as far as possible with the family physicians in such cases.

"Fifth—The department further aims to assist the students to preserve health by guarding against all conditions that might lead to disease or a lowered vitality and thus cut down mental and physical efficiency. In this connection a student board of health will be appointed by the health officer to consist of at least one representative from each of the schools and the dormitories. The duties of this student board will be to co-operate with the health officer of the university in solving the problems affecting the health of the community and to assist him in spreading prophylactic measures. The work that can be done by a representative student committee of this kind in bringing to light valuable information regarding conditions touching the students both on the campus and in the neighborhood is inestimable."

THE DISCONTINUANCE OF THE FREE ADMINISTRATION OF DIPHTHERIA ANTITOXIN BY THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK.—The free adminstration of antitoxin in diphtheria, and the performance of intubation, by the inspectors of the Department of Health of the City of New York, was begun in 1895, the objects in view being not only the cure and prevention of the spread of the disease, but also the education of the medical profession and the general public. These ends have been accomplished. The death-rate of the disease in Manhattan and the Bronx has fallen from 15.9 per 10,000 of population in 1894 to 2.2 in 1912. In 1894 twenty-nine out of every one hundred cases reported, died. In 1912 less than nine cases out of every hundred died. Since 1895 almost 40,000 cases have been injected with antitoxin furnished by the Department of Health, and of these, less than 6% proved fatal. Finally, the records show that at the present day practically every case of diphtheria receives antitoxin.

On and after February 1, 1913, therefore, the present system of free administration by inspectors of the Department of Health, of diphtheria antitoxin and performance of intubation at the homes of the patients, at the request of attending physicians, will be discontinued. After that date, when it becomes necessary for the Department of Health to administer antitoxin or perform intubation in any case of diphtheria, the patient will be at once removed to one of the hospitals of the Department for further observation and treatment. Diphtheria antitoxin may still be obtained, free of charge, by physicians from supply stations at drug stores for use where payment for the same by the patient would be a hardship.

NEW YORK STATE DEATH-RATES.—Report from Albany, N. Y., on January 20, shows that the New York State death-rate for 1912 was only 14.6 per 1000, the lowest recorded in this state since statistics have been kept.

WARNING AGAINST LEAD POISONING.—So much lead poisoning has been found to exist among painters and lead workers in New York factories that the Department of Labor (of that State) has begun a vigorous campaign against plumbism, a disease which recent investigation by the federal government shows to be from 8 to 10 times as frequent in American as in European factories where the manufacture and use of lead is under strict governmental control. The Department is endeavoring to enlist the co-operation of employers and workers in lead at the same time that definite legal regulation of the industry is being proposed by the American Association for Labor Legislation as a necessary supplement to voluntary action. This regulation which comes in the form of the Association's unform bill, now being introduced in ev-

ery state in which a legislature is at present sitting, calls for sufficient washing facilities, instructions to workmen by foreman and others, mechanical methods of dust prevention and removal, and the prohibition of eating in workrooms. This promises to be a big national campaign for the prevention of lead poisoning.

The New York law already requires physicians and hospitals to report lead poisoning and the Department has just distributed to every painter's union and to all employers and hospitals reporting cases of lead poisoning a 50,000 English edition of a card of "Information for Workmen," to be followed later by editions in other languages, stating that lead poisoning can be prevented, that hoods and other mechanical means are necessary to take away lead dust and fumes, but that the workers themselves need to take extraordinary precautions.

Current Literature.

Medical Record.

January 11, 1913.

1. Stein, J. B. *Jan Palfyn.*
2. Robbins, F. C. *Report of a Case of Pellagra.*
3. Greene, J. S. *Diseases of the Labyrinth, With Special Reference to the Methods of Examining the Labyrinth in the Continental Clinics.*
4. Beall, F. C. *Subcutaneous Rupture of the Kidney.*
5. *Shears, G. P. *A New Method of Treating the Toxemia of Pregnancy. Preliminary Communication.*
6. Grushlaw, I. *Report of a Case of Sinus Thrombosis; Operation; Recovery.*

5. Shears suggests suboxidation as the real cause of the toxemia of pregnancy. The clinical symptoms—dyspnea, headache, edema, convulsions—are strongly suggestive of lack of oxygen. Acting on this theory, the writer has been treating his toxemic cases by the free use of oxygen with good results. The oxygen was generally given by inhalation, but occasionally subcutaneously. This treatment supplements but does not take the place of diet, catharsis, hydrotherapeusis, and other measures of proved value. [L. D. C.]

January 18, 1913.

1. Chapin, H. D. *Some Problems of Nursing: A Plea for Grading.*
2. *Von Noorden, C. *Radium and Thorium-x Therapy.*
3. Bennett, A. B. *The Prognostic Value of the Rinne, Weber and Schwaback Tests.*
4. Neustaedter, M. *Observations of the Atypical Children in Dr. Groszman's School, from the Standpoint of the Neurologist.*
5. Greeley, H. *Beauty Doctoring.*
6. Coopernail, G. P. *Three Important "Doni's" in Bone Plating.*

2. Von Noorden writes an exhaustive paper on the therapeutic application of the radio-active elements, especially radium and thorium-x, in internal medicine. The most reliable and unobjectionable form of radio-active treatment is probably a combination of strong radio-active spring baths with emanatoria and drinking cure, and the conditions most amenable to such treatment are genuine uric acid gout, obstinate non-gouty arthrosis, myalgias and neuralgias, where chemical methods are out of place, sexual impotence, mild neurasthenia and nervous insomnia. Powerful thorium-x treatment is very promising, and its domain will be especially the diseases of the blood, leukemia and severe anemia. [L. D. C.]

New York Medical Journal.

January 18, 1913.

1. Babcock, W. W. *Superficial Metastatic Growths in the Diagnosis of Deep Seated Malignant Tumors.*
2. Vandegrift, G. W. *Edema of the Lids.*
3. Coates, G. M. *Bismuth Paste in the Ear and Nose.*
4. Mills, W. S. *An Hermaphrodite?*
5. Niles, G. M. *The Treatment of Pellagra.*
6. Ferguson, W. *Rhinology and Laryngology in General Practice.*
7. Pettit, R. *Incipient Tuberculosis of the Larynx.*
8. *Welch, J. E. *Normal Human Blood Serum in the Treatment of Hemorrhagic Diseases of Infants and Children.*
9. Shipman, E. W. *Eye Strain in Children.*
10. Greco, W. *The Origin of Medical Journalism.*

8. Welch reports two cases of hemorrhagic disease in the new born and one case in a child of seven, all three successfully treated by the subcutaneous administration of normal human blood serum. The latter as a therapeutic agent will probably always find its broadest field of application in such cases, in which it acts almost as a specific. [L. D. C.]

The Journal of the American Medical Association.

January 25, 1913.

1. Young, H. H. *A New Procedure (Punch Operation) for Small Prostatic Bars and Contracture of the Prostatic Orifice.*
2. Chetwood, C. H. *Contracture of the Neck of the Bladder.*
3. Harpster, C. M. *Prostatotomy by the Method of Goldschmidt.*
4. Deaver, J. B. *Impermeable Stricture of the Bulbo-membranous Urethra (Impermeable to the Passage of Instruments).*
5. *Beer, E. *The Relief of Intractable and Persistent Pain, Due to Metastases Pressing on Nerve Plexuses by Section of the Opposite Anterolateral Column of the Spinal Cord, Above the Entrance of the Involved Nerves.*
6. Auer, E. M. *Spastic Paraplegia with the Cutaneous Reflex of Defense Occurring in Pott's Disease.*
7. *Jennings, A. H., and King, W. V. *One of the Possible Factors in the Causation of Pellagra.*
8. Braasch, W. F. *Clinical Data on Malignant Renal Tumors.*
9. Manwaring, J. G. R. *Replacing Depressed Fractures of the Malar Bone.*
10. Leighton, A. P., Jr. *A Portable Combination Douche-Can and Sterilizer.*
11. Faught, F. A. *A New Instrument for Teaching the Auscultatory Blood-Pressure Technic.*
12. Fischer, L. *Infantile Scurvy in Which Swollen Joints Resembled Acute Articular Rheumatism.*

5. Beer advocates the section of the anteriolateral tract of the spinal cord for intractable pain of malignant growths affecting the cord instead of section of

posterior nerve roots. The former is the simpler procedure and does less damage, giving equal relief.

7. Jennings and King suggest that if pellagra is an insect-borne disease, which seems likely, transmission is very probable by the *Stomoxys Calcitrans*, or common biting stable-fly. [E. H. R.]

THE LANCET.

JANUARY 4, 1913.

1. *MARTIN, C. J. *Horace Dobell Lectures on Insect Porters of Bacterial Infection. Lecture I.*
2. HEMSTED, H., AND HORDER, T. J. *A Recovery from Infective Endocarditis (Streptococcal).*
3. EVANS, W. H. *Rupture of the Spleen and Liver; Operation; Recovery.*
4. FREW, R. S., AND GARROD, A. E. *Glycosuria in Tuberculous Meningitis.*
5. THOMSON, ST. C. *Removal Through the Mouth of a Tooth-Plate Impacted in the Esophagus for Two and a Half Years.*
6. *BARDSWELL, N. D. *Some Observations upon the Treatment of Pulmonary Tuberculosis with Small Doses of Tuberculin, the Dose Being Regulated by Frequent Estimations of the Opsonic Index.*
7. DUDGEON, L. S., MEEK, W. O., AND WEIR, H. B. *A Preliminary Inquiry as to the Value of the Complement Fixation Test in Tuberculosis.*
8. PRINGER, S. *Radical Operation for Malignant Disease of the Testis.*
9. CARGIN, H. M. *A Case of Diphtheritic Enteritis.*
10. HOLLIS, W. A. *Facial Crinkles and Emotional Grimace.*
11. WOOD-JONES, F. *The Ideal Lesion Produced by Hanging.*

1. Cf. *British Medical Journal*, January 4, 1913.

6. Bardswell as a result of treating a small number of cases of pulmonary tuberculosis (17) concludes that tuberculin had no effect one way or the other as regards immediate or ultimate results. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 4, 1913.

1. *MARTIN, C. J. *The Horace Dobell Lectures on Insect Porters of Bacterial Infections. Lecture I.*
2. MOYNIHAN, B. *An Address on Gall Stones.*
3. DELÉPINE, S. *A Lecture Introductory to an Advanced Course on Tuberculosis.*
4. THOMAS, J. L. *The Cult of Iodine and the Dread of Skin.*
5. MCGUIRE, R. C. *Aberrant and Recurrent Osteomyelitis.*
6. SCOTT-CARMICHAEL, E. *Primary Sarcoma of Both Biceps Muscles.*
7. ROSE, C. *Cocaine Poisoning.*
8. PENFOLD, W. J. *An Experiment to Illustrate the Effect of Size of Population on the Rate of Selection of New Bacterial Races.*

1. In the first Dobell Lecture, Martin considers the house fly, its morphology, its relation to epidemics of typhoid fever and infantile diarrhea. There are numerous tables and charts. The subject is covered in a careful and thorough manner. There is an elaborate bibliography. [J. B. H.]

THE PRACTITIONER.

JANUARY, 1913.

SPECIAL TUBERCULOSIS NUMBER.

1. *ALLBUTT, T. C. *Introduction.*
2. *HORDER, J. J. *Bacteriology, Pathology and Research.*
3. *CARR, J. W. *The Ways in Which Tubercle Bacilli Enter and Spread in the Body.*
4. *LATHAM, A. *Diagnosis and the Principles of Treatment in the Early Stages.*
5. *LAWSON, D. *X-rays in Diagnosis.*
6. *POWELL, R. D. *General Treatment.*
7. *WALTERS, F. R. *Sanatorium Treatment and After Care.*
8. *BARDSWELL, N. D. *Home Treatment and Rules for Living.*
9. *PATERSON, M. *Treatment by Graduated Rest and Exercise.*
10. *WOOD, N. *Climatic Treatment.*
11. *WATSON, C. *Dietetic Treatment.*
12. *DIXON, W. E. *Use and Abuse of Drugs.*
13. *ALCENDOR, J. *Tuberculosis and Phosphorus Metabolism.*
14. *LILLINGSTON, C. *Pneumothorax Treatment.*
15. MERTHER, C. *Continuous Antiseptic Inhalation.*
16. COLEBROOK, L. *The Opsonic Method in Relation to Tuberculosis.*
17. *WILKINSON, W. C. *Tuberculin and Tuberculosis, with Special Reference to Dispensary Treatment.*
18. BENNETT, R. A. *Treatment at the Torquay Tuberculin Dispensary.*
19. *GOULD, A. P. *Surgical Treatment.*
20. DOVES, R. *Tuberculous Diseases of Bones and Joints.*
21. GAUVARN, H. J. *The Use of Plaster of Paris in the Mechanical Treatment of Tuberculous Disease of the Spine.*
22. BARTZNER, W. *The Trypsin Treatment of Surgical Tuberculosis.*
23. WATSON, C. G. *Surgical Tuberculosis of the Colon, Rectum, and Anal Canal.*
24. THOMPSON, T. *Tuberculosis of the Stomach and Intestines.*
25. *FENWICK, E. H. *Urinary and Genitourinary Tuberculosis.*
26. THOMSON, ST. C. *Tuberculosis of the Larynx.*
27. MILLIGAN, W. *Tuberculous Disease of the Ear.*
28. ORMOND, A. W. *The Eye in Relation to Tuberculosis.*
29. WHITING, A. J. *The Association of Tuberculosis with Disorders of the Nervous System.*
30. *PRITCHARD, E. *Tuberculosis in Children.*
31. *RAW, N. *The Treatment of Localized Tuberculous Infections.*
32. GORDON, W. *Rain-bearing Woods and the Prevalence of Tuberculosis.*
33. MOORE, J. *Tuberculosis in Ireland.*
34. ACLAND, T. D. *On the Education of the Public in Relation to the Prevention of Tuberculosis.*
35. GLAISTER, J. *Public Health and Tuberculosis, with Special Reference to the Housing Problem.*
36. PRIESTLEY, J. *Tuberculosis and Public Health, with Special Reference to "Sanatorium Benefit."*
37. LISTER, T. D. *Pulmonary Tuberculosis in Relation to Life Assurance.*

1. This number of the *Practitioner*, containing short, concise, up-to-date articles from the best English authorities, is a valuable contribution to the literature. Should the reader be able to do nothing more than to study Allbutt's introduction with comments on the other papers, he will from this alone gain valuable information.

2. This article covers the morphology of the tubercle bacillus, the sources of infection and modes of entrance, the factor of susceptibility, results of infection, isolation and recognition of the bacillus, and indirect methods of diagnosis, including the tuberculin tests.

3. Carr discusses the paths of infection and spread in the body. He believes an inherited lack of resistance to be a very real thing; also that bovine tuberculosis plays a very important part in childhood, and that no effort is too great to ensure a supply of pure milk. In countries where there is little or no milk

there is still a large amount of tuberculosis in childhood, showing that other methods of infection must still be a great factor.

4. Latham gives an excellent article on diagnosis and treatment. He emphasizes the question of exposure to infection, former pleurisies, hemoptysis, repeated febrile attacks, and undue fatigue as important constitutional or local signs. Lung signs may be very slight or absent. Dullness is rare in early cases. He discusses sputum examinations, the value of x-rays and of tuberculin. His views on treatment are sane. The paper is an excellent one.

5. Lawson's paper on x-ray diagnosis is illustrated with excellent plates. He claims rather too much for the method (as do the majority of x-ray workers), and thereby detracts from the value of this article.

6. Powell makes several statements in his paper on treatment which in this country would be criticized, especially regarding home treatment as suitable for advanced consumptives. On the whole, he hardly does justice to the sanatorium.

7. Walters, on the other hand, states the case of the sanatorium very fairly and emphasizes the importance of after-care if the cure is to be at all permanent.

8. Bardswell gives excellent advice on treatment in general, but again is rather too lenient concerning treatment at home under ordinary conditions.

9. Paterson briefly reviews his well known ideas on auto-inoculation by graduated exercise, as carried on at Frimley.

11. Watson discusses diet under the following headings: 1, General principles; 2, tuberculosis in cases of impaired digestion; 3, diet suitable for *a*, well-to-do classes, and *b*, working classes; 4, prophylactic treatment for children of tuberculous tendency. The latter is of distinct value. The views here expressed seem sane and sound.

12. Dixon has no use for hypophosphites, as they are excreted by the kidneys unchanged.

13. Alcindor, on the other hand, claims that the beneficial effects of hypophosphites are manifold and sure, and "a distinct accession to modern methods."

14. Lillingston writes enthusiastically concerning artificial pneumothorax and urges its further use on suitable cases.

17. Wilkinson writes in his usual vein concerning tuberculin. His views are not sound or safe.

19. Gould's paper on surgical tuberculosis is excellent. Conservative surgery, as an adjunct to general hygienic measures, and tuberculin, is what he advises. The paper is of great value.

25. Fenwick discusses tuberculosis of the genito-urinary tract. The kidney is most liable to infection of any part of this tract, although symptoms may often be referred to the bladder. If there is found a thickened ureter, it means the kidney is affected. Onset of the disease may be of the vesical type, with frequency of micturition, etc., or of the renal type, with localized pain in the loin. In a clear and concise manner he describes tuberculosis of other parts of the genitourinary tract and treatment of such conditions. He does not speak so enthusiastically of results obtained with tuberculin as do many American writers.

30. Pritchard furnishes one of the most valuable articles in this number, on tuberculosis in children. He emphasizes the fact that tuberculosis is, after all, a true children's disease. He discusses the incidence of the disease, up to 90% at the age of 14 years, and compares it with mortality, high at birth, but decreasing up to adolescence. His views on the importance of bronchial gland tuberculosis are sound and clear; his remarks on diagnosis of this condition are excellent. The article is made easy reading by frequent summaries, in concise and almost epigrammatic form. (It would be an excellent thing if every general practitioner read and studied this valuable paper.—J. B. H.)

31. Raw, whose name has so long been connected with the treatment of surgical tuberculosis, and particularly tuberculous glands, writes enthusiastically on the value of tuberculin in the treatment of this condition. [J. B. H.]

Edinburgh Medical Journal.

1. *Turner, A. L., and Fraser, J. S. *Direct Laryngoscopy, Tracheo-Bronchoscopy and Esophagoscopy.*
2. Hutchison, R. *The Function of the Royal Medical Society in Medical Education.*
3. *Graham, J. M. *Primary Cancer of the Vermiform Appendix.*
4. Brock, A. J. *On Tumor Formation and Allied Pathological Processes.*
5. Simpson, J. W. *Incontinence of Urine in Children.*

1. This paper is a practical and concise description of this somewhat difficult operation. There are many excellent plates which greatly add to the value of the article.

3. Graham describes with plates one case of cancer of the appendix, and discusses at some length this question in general. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 50. December 10, 1912.

1. *Gerhardt, D. *The Crescendo-murmur of Mitral Stenosis.*
2. *Stierlin, E., and Schapiro, N. *Effect of Morphine, Opium and Pantopon on Movements of the Alimentary Canal in Man and Animals.*
3. Meyer-Betz. *The Normal Movements of the Large Intestines.*
4. Strauss, A. *Contribution on Chemotherapy of External Tuberculosis.*
5. Eskuchen, K. *Origin of Atrophy of the Optic Nerve in Hydrocephalus.*
6. v. Brunn, M. *Sciatica in Accidental Injury.*
7. Kondoléon, E. *Surgical Treatment of the Edema of Elephantiasis by a New Method of Lymph Drainage.*
8. Oehler, R. *Harmfulness of Distilled Water.*
9. Harnack, E. *The Arsenical Springs at Durkheim.*
10. Dienst, A. *A Simple Method for Differentiating Between Ascites and Soft Ovarian Cyst.*
11. Frank. *A Typical Street Railway Injury.*
12. Zink. *Experiments with Mesbé.*
13. v. Borosini, A. *A Universal Truss.*
14. Winckel, M. *The Chemical Action of Carbenzyme.*
15. Hansen. *Absence of the Appendix.*
16. Mathes, P. *Psychiatry in Gynecology.*
17. Borchers, E. *Technic of Chlorethyl-narcosis.*
18. Antenrieth, W., and Funk, A. *Colorimetric Tests: The Renal Test of Rowntree and Geraghty; Estimation of Rhodan in the Saliva and of Iodine in the Urine.* (*Concluded.*)
19. Iselin, H. *Injury to the Skin by Röntgen Light after Deep Treatments: Cumulative Effect.*

1. Gerhardt believes that the crescendo murmur of mitral stenosis occurs when the diastolic murmur produced by the auricular contraction is checked by the beginning of ventricular systole. If there is any pause between this diastolic murmur and the first sound, the crescendo character of the snap of the first sound is lost. In partial heart-block with mitral stenosis the murmur is lost on beats having a long pause between the contractions of auricle and ventricle, with a resulting pause between the diastolic murmur and first sound. In perpetual irregularity, when the auricles may be assumed to be in fibrillation, the crescendo character appears only when one beat of the ventricle quickly follows another.

2. The writers studied the effect of morphine, opium and pantopon on six humans having fistulae in various parts of the intestines, and on one dog. They found that the three substances act much alike, but that in youth they delay the emptying of the stomach for hours, but that in older persons this delay is less. The time of passage through the small intestines was pretty constantly much lengthened. The large intestine was not affected but material remained long in the sigmoid, perhaps due to inhibition of the reflex of defecation. [G. C. S.]

No. 51. DECEMBER 17, 1912.

1. BRESSLAU, E. *Hyperthelia.*
2. BERING, F. *The Effect of Light.*
3. GROSS, O. *Simultaneous Occurrence of Achylia Gastrica and Pancreatica.*
4. DIENST, A. *Cause of Failure of the Blood to Clot During Menstruation.*
5. MEYER, E. *The Question of Artificial Abortion in Psychic Disorders.*
6. *FÜRER. *The So-called Abstinence in Delirium of the Chronic Alcoholic.*
7. STOLTE, K. *Significance of Copious Finding of Fat in Infancy and Its Practicability.*
8. GRUBBENDORF. *Suture of the Bladder in Children After High Incision for Stone.*
9. RABE, F. *The Question of Absorption of Iron Preparations.*
10. VEIT, K. E. *Treatment of External Anthrax.*
11. VORPAHL, K. *Finding of Spirochetae in the Urine in Syphilitic Nephritis.*
12. FREUND, E. *Abortive Cure with Salvarsan.*
13. HENGGE, A. *Hypophyseal Extract and Semi-sleep in Midwifery.*
14. MÜLLER, A. *A Universal Examining Table for the Practicing Physician.*
15. MICHELSON, J. *Sterilizer and Universal Instrument Table.*
16. v. LORENTZ. *A New Table with Special Advantages for Röntgen Examination.*

6. Fürer doubts that delirium tremens is brought on by sudden abstinence. He recommends cutting off alcohol completely in alcoholism and treating the patient by rest, hypnotics, forced feeding, etc. [G. C. S.]

No. 52. DECEMBER 24, 1912.

1. *SCHULTZE, E. O. P., AND BEHAN, B. J. *Negative Pressure in the Long Bones of Dogs.*
2. *GREGOR, A., AND SCHILDER, P. *Studies of Muscle with the String Galvanometer.*
3. v. DUNGERN, E. *Sero Diagnosis of Tumors by Fixation of Complement.*
4. MÜLLER, A. *Relation of Chronic Appendicitis to the Female Genital Organs.*
5. STOFFEL, A. *Technic of My Operation for Relief of Spastic Paralysis.* (*To be concluded.*)
6. KOTZ, R. *The Question of Curability of Otogenic Meningitis.*
7. FRIEDIGER, A. *Dimethylamidoazobenzol as a Microscopic Reagent for Fat, and Its Use for Examination of Gastric and Intestinal Contents.*
8. RÖDER, H. *Fitness for Military Service and Enteroptosis.*
9. *CREDÉ, B. *A New Cathartic for Use Subcutaneously and Intramuscularly.*
10. PICK, J. *Hemorrhagic Diathesis.*
11. EICHLER. *Severe Arsenic Poisoning After Salvarsan.*
12. RIECK. *For and Against Pituitrin.*
13. BRUCK, C. *Weakening of the Organism in Diseases of the Skin.*

1. In the course of studies on fat-embolism the writers discovered that in the long bones of dogs the venous pressure is negative to 19-22 mm. of water. If these observations are confirmed they will throw new light on the circulation of blood which is likely materially to modify present conceptions. The findings afford a ready explanation for fat-embolism and metastatic infections and help to explain the action of passive venous hyperemia.

2. The observations of Gregor and Schilder on muscular action by means of the string galvanometer are likely to prove deeply interesting to physiologists and to neurologists. The work seems to point the way to a clearer understanding of innervation in pathological stasis.

9. Credé has evolved and tested a preparation of senna which he calls sennatin. He reports excellent results from its use subcutaneously or intramuscularly for catharsis. It is said to be entirely harmless, to produce practically no local reaction when given intramuscularly. [G. C. S.]

No. 53. DECEMBER 31, 1912.

1. *FRANZ, R. *Serum Treatment in Melena Neonatorum.*
2. SCHRENCK, T. *Effect of Digitalis on Different Forms of Heart Disease.*
3. HINSBERG, V. *Relief of Dysphagia in Disease of the Larynx.*
4. CHIABOLANZA, R. *On Surgery of the Bones.*
5. MÜLLER, J. M. *Care of the Teeth in the Army.*
6. STERN, K. *Laparotomy in Private Houses.*
7. HEERMANN. *How Shall We Obtain Uniformly Accurate Measurements of Temperature?*
8. SCHÖNEBERGER, F. *Spring Extension for the Lower Extremity.*
9. HAUN. *Treatment of Phlegmon of the Upper Extremity.*
10. STRONGMEYER, A. *A Simple Instrument for Removal of Diphtheritic Membrane.*
11. WOLFF, M. *An Electric Reflector for Microscopy, etc.*
12. WEISZ, E. A *Simple Apparatus for Treatment of Stiff Wrists.*
13. v. ANGERER, C. *The Epiphanin Reaction.*
14. *STOFFEL, A. *The Technic of My Operation for Relief of Spastic Paralysis.*

1. Franz reports success in the treatment of five cases of melena neonatorum by subcutaneous injections of human blood serum.

14. The detailed methods described by the writer are unsuitable for abstracting, but his results in spastic paralysis are strikingly good. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 2, 1913.

1. KELLING, G. *New Experiments for the Production of Tumors by Means of Homogenous and Heterogenous Embryonic Cells.* (*To be concluded.*)
2. THEILHABER, A. *The Prophylaxis of Carcinoma.*
3. ARZT, L., AND KERL, W. *The Knowledge of the Parasitotropic Action of Atoxyl and Neosalvarsan.*
4. STRISOWER, R. *Contribution to Cases of High-Grade Blood Eosinophilia in a Carcinomatosis and in a Lymphogranuloma.*
5. ZOGRAFIDES, A. *Bilateral Ekchondroma of the Ear Muscle.*
6. *KOWANITZ, O. A. *Our Experiences with Hexal.*
7. FISCHER, I. *Contributions to the History of Medical Culture.*

6. Kowanitz reports three typical cases in which he employed, as a bladder antiseptic and analgesic, hexal, a synthetic combination of hexamethylentetramine with sulpho-salicylic acid. From his experience, he concludes that it is a valuable drug in the treatment of all forms of cystitis, and is cheaper and acts more quickly than urotropin. It has all the advantages of urotropin, and in addition is analgesic and pleasant to take. Its dosage is the same as that of urotropin. [R. M. G.]

REVUE DE MÉDICINE.

DECEMBER, 1912.

1. *NIMIER, H., AND NIMIER, A. *Some Symptomatic Manifestations of Peripheral Facial Paralysis.*
2. *ROGUE, G., AND CORDIER, V. *The Tuberculous Nature of the Ascites in the Cirrhoses, Especially in That of Laënnec.*
3. COUEMONT, J., SAVY, P., AND MAZEL, P. *A Case of Protracted Malta Fever, Observed in the Region of Lyons.*
4. CECILAAS, J. *Contributions to the Study of Pathological Heredity.*

1. The authors cite as signs and symptoms of peripheral facial paralysis the three following signs: Narrowing of the palpebral fissure during abduction, narrowing of the fissure associated with involuntary elevation of the globe, and involuntary narrowing during the act of laughing. As objective symptoms they emphasize the following: Acousalgia and muscular sounds in the impaired ear.

2. As conclusion to an extensive and extended article on the tubercular nature of ascites in cirrhosis, Rogue and Cordier draw the following conclusions: All ascites in Laënnec's cirrhosis is of tubercular origin and presupposes the existence of an inflammatory peritoneal process. This process has often no clinical evidence and is not of the anatomical appearance of the tubercular peritonitis previously described. They believe also that in such cases the liver is almost always the seat of a tubercular process. In their last seven cases, which they admit insufficient to refute the well established etiology of the disease, alcohol played a rôle, simply favoring the onset of the cirrhotic process. [L. H. S.]

IL POLICLINICO.

DECEMBER, 1912.

MEDICAL SECTION.

1. CAVOZZANI, E., AND AVITE, G. *Concerning an Antifermentative Action of Sulphocyanic Acid Upon Pespin.*
2. GIANI, E. *On the Value of the Glycyltryptophan Test in the Diagnosis of Gastric Cancer.*
3. *GHILARDUCCI, F., AND MILANI, E. *...Biologic and Curative Properties of the Fluorescent Substances Associated with the X-rays.*

3. Ghilarducci and Milani experimented with the fluorescent substances associated with x-rays, testing their effect on blood, on bacteria (bacillus pyocyaneus, the tubercle bacillus and the lactic acid bacillus) and on the extirpated glands of tuberculous animals. They then tested the therapeutic value of these substances in cases of epithelioma and cutaneous tuberculosis. They find that x-ray fluorescent substances possess bactericidal properties superior (especially in their therapeutic application) to those demonstrated by Tappeiner in other fluorescent substances. [L. D. C.]

Correspondence.

MORBIDITY REPORTS.

UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

January 27, 1913.

Mr Editor: The Tenth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service, held in Washington, June 1, 1912, adopted a resolution submitted by the conference committee on Morbidity Reports.

The purpose of the resolution was to put into operation a co-operative plan by which information of the current occurrence and geographic distribution of the communicable disease would be available to the respective health authorities.

The main features of the resolution were provisions (1) for the telegraphic report to this office of the occurrence of cases of certain dangerous epidemic diseases, exotic or of unusual occurrence; (2) for the telegraphic report of outbreaks or epidemics of the ordinary epidemic diseases; and (3) for the monthly report by mail of other notifiable diseases.

The intended purpose is that the Bureau of the Public Service shall serve as a clearing house for this information and shall publish it currently in the Public Health Reports. In the case of the occurrence of exotic or dangerous diseases, or of unusual outbreaks, the information will be telegraphed to the various State health authorities from the Bureau.

Blanks have been prepared for the making of the reports to be forwarded by mail, and have been distributed to the health authorities of the various States, who have been asked to what extent it will be practicable for them to co-operate in the making of these reports.

Copy of the resolution as adopted by the conference is inclosed in Reprint No. 83, marked Exhibit "A". A copy of the letter sent to each of the State health authorities is also inclosed, marked Exhibit "B", and a set of the blanks prepared for these reports marked Exhibit "C".

The matter of being able to know of the occurrence and distribution of disease is one of paramount importance to public health work. Public health work is in reality nothing more than the prevention of the occurrence and spread of disease. The occurrence or spread of disease cannot be prevented unless the location and frequency of foci of infection, or of the conditions which produce morbidity, are known. This cannot be known unless the occurrence of disease is reported. Without a knowledge of the prevalence and geographic distribution of disease there can be no rational public health work, and the only reliable and accurate way by which this knowledge can be acquired is the notification of cases of disease.

I am sending you this letter that you may be cognizant of the work this Bureau is attempting to accomplish in co-operation with the State health authorities, and that you may, through your JOURNAL, be of such assistance as to you seems warranted.

I trust that you will feel at liberty to make any suggestions regarding these reports or the manner in which they are published in the Public Health Reports (See issue of December 6, 1912, p. 2046) that may occur to you as likely to increase their value.

Very truly yours,

RUPERT BLUE, *Surgeon General.*

[The resolution referred to in this communication is published in another column of this issue of the JOURNAL (p. 211). The reporting blanks it is obviously impossible to reprint, but they can be obtained by those who are interested. This action of the Public Health Department should greatly further and facilitate the important and desirable end of securing more extensive, accurate and reliable centralized and coördinated information about the occurrence of communicable diseases throughout the registration area. —EDITOR.]

THE FLUOROSCOPIC METHOD.

January 29, 1913.

Mr. Editor: Th writer notes with interest, in your current issue, the kindly criticism from the pen of Dr. A. L. Benedict, of Buffalo, of his recent article in the JOURNAL dealing with the investigation of the alimentary tract by means of Roentgen rays.

It was far from the writer's intention to give precedent to the work of Rieder over that of others, in point of temporal priority, or otherwise. By his statement, quoted by Dr. Benedict, he wished to convey that Rieder took pains to "demonstrate what could really be done"—not necessarily by Rieder alone.

It occurs to the writer that broadcast *demonstration* by Roentgen procedure can best be accomplished by pictorial records without the aid of manual delineation, simplification or diagrammatizing. He believes it to be the general impression among American Roentgenologists that Rieder's *pictorial records* of his early momentary exposures of the thorax are of a character monumental. Rieder's records of his alimentary findings as published, are of a nature which suggest the same appellation.

The early observations of Dr. Benedict, as of many others, are familiar to very Roentgen worker and it was a distinct omission that they are not embraced in the suffix to the article in question, which, however, was merely a list of references and, by no means, a complete bibliography of the subject.

The work of the earlier observers, which includes that of Dr. Benedict, of Williams on the chest, and of Cannon on the physiology of alimentation, was necessarily largely fluroscopic and, therefore, difficult of ocular *demonstration in the literature* by any diagrammatic Roentgen records. It is a pleasure to note that, by virtue of its value as shown by these men and by others, the fluoroscopic method, for a long time slighted, has again come into its own.

Yours very truly,

PERCY BROWN, M.D.

DIABETES-MELLITUS.

Mr. Editor: I am undertaking an exhaustive research into the pathology, etiology and dieto-therapy of Diabetes-Mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment or who has had any experience in the treatment of this malady. Von Noorden says, "the best treatment for the diabetic is the *food* containing the *greatest* amount of *starch* which the patient can bear without harm." If any physician who reads this has similar or contrary experience, and would take the trouble to write me, I would esteem it a special privilege to hear from him, if only a postal card.

Very truly yours,

WILLIAM E. FITCH, M.D.,

355 West 154th Street, New York City.

January 27, 1913.

Miscellany.

APPOINTMENTS.

DR. WALTER C. BAILEY, of Boston, has been nominated by Governor Foss to succeed the late Dr. Arthur Tracy Cabot as trustee of the Massachusetts state hospitals for consumptives.

The Boston Health Commissioners have recently appointed from the civil service list DR. FRANCIS G. BARNUM, of Hyde Park, DR. JOHN S. BROWNRIGG of Roxbury, and DR. EDWARD F. TIMMINS, of South Boston, as assistant physicians in the child hygiene division of the Boston Health Department.

TUFTS COLLEGE MEDICAL SCHOOL.—*Morton Prince, A.B., M.D., LL.D.*, has been appointed Professor of Neurology, Emeritus. *George H. Washburn, A.B., M.D.*, has been appointed Professor of Obstetrics, Emeritus. *John Jenks Thomas, A.M., M.D.*, has been appointed Professor of Neurology. *Alfred William Balch, Ph.G., M.D.*, has been appointed Professor of Chemical Pathology and Toxicology. *Stephen Rushmore, A.B., M.D.*, has been appointed Professor of Gynecology. *Leo V. Friedman, A.B., M.D.*, has been appointed Assistant Professor of Obstetrics. *Elmer W. Barron, A.B., M.D.*, has been appointed Assistant Professor of Children's Diseases.

RECENT DEATHS.

DR. ALBERT CLINTON ALDRICH, of Somerville, Mass., who died of heart disease on Jan. 29 at Winchester, Mass., was born in Lisbon, N. H., on Aug. 27, 1857. He received from Harvard University the degree of A.B. in 1879, and that of M.D. in 1883. After serving for a year as house physician at the Rhode Island State Hospital, he first settled in St. Johnsbury, Vt., but in 1885 removed to Somerville, where he continued active in the practice of his profession until his death. He was a Fellow of The Massachusetts Medical Society, a member of the Somerville Medical Society, and of the local Board of Health. He is survived by his widow, by one daughter, and by one son.

DR. ROBERT PARKER MARR AMES, who died of diabetes on Jan. 25 at Springfield, Mass., was born in 1856. He received the degree of M.D. in 1880 from Jefferson Medical College. After serving for a year as resident surgeon at the Jefferson College Hospital and at the Blockley Hospital in Philadelphia, he was in 1881 appointed assistant surgeon of the United States Marine Hospital at St. Louis, and subsequently saw considerable service in the navy at sea. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the Hampden District Medical Society.

DR. GEORGE A. GIBSON, lecturer on medicine in the Royal Colleges of Edinburgh, died suddenly from heart disease January 18th last. Dr. Gibson received an honorary degree from Harvard in 1909.

DR. ORVILLE HORWITZ, who died of heart disease last week in Philadelphia, was born at Washington, D. C., in 1859. He graduated from the University of Philadelphia in 1881, and in 1883 received the degree of M.D. from the Jefferson Medical College, where he was subsequently for some years professor of surgery. He was a member of the American Medical Association and of many scientific societies. He was unmarried.

DR. ELMER E. MOORE, who died last week at East Providence, R. I., was born in 1850. He had practised his profession in East Providence since 1877.

DR. ALFRED MORSE, who died of septicemia in Boston on Jan. 29, was born in this city in 1885. He received the degree of M.D. from the Tufts Medical School in 1910, and served as house officer at the Boston City Hospital. He had recently received an appointment at the United States Marine Hospital, Chelsea, Mass. He is survived by his mother and by two sisters.

DR. JAMES ALEXANDER PETRIE, who died on Jan. 23 at Phillipsburg, N. J., was born in 1842, in England. He was a graduate of King's College, London. After coming to the United States he entered the Navy and served as a surgeon throughout the Civil War. Subsequently he received the degree of M.D from the University of Pennsylvania in 1866 and practised medicine for a time in Jersey City and in Elizabeth, N. J. He is survived by his widow.

DR. JAMES PERCIVAL TUTTLE, who died of diabetes on Jan. 31 in New York City, received the degree of M.D. from the University of Pennsylvania in 1881. He was connected with several New York hospitals, and was the author of numerous articles on cancer. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

Spinal Analgesia—Development and Present Status of the Method, by William Seaman Bainbridge, M.D. Reprint.

Original Articles.

DISEASES OF THE MIDDLE EAR AND MASTOID CELLS, BASED UPON A STUDY OF 454 AUTOPSIES AND 2232 CASES OF DIPHTHERIA, SCARLET FEVER, AND MEASLES.*

BY C. R. C. BORDEN, M.D., BOSTON.

SINCE the opening of the contagious department of the Boston City Hospital in 1896, autopsy records of 454 cases have been collected. Nearly all of them were children, who had died from scarlet fever, diphtheria, measles, or from complications arising from these diseases. The records were written by skilled pathologists who performed the autopsies, and each record is as complete, carefully written, and accurate as it is possible to make them. In 202 of the autopsies the head was not opened, owing to the objection of parents and friends. The remaining 252 state clearly the condition of the middle ear or mastoid, normal or abnormal, as the particular case may be.

In order that we may better compare the post mortem with the clinical cases, I will briefly quote the few statistics available. Dr. McCollom reports 18% of middle ear complications in scarlet fever and 24% in measles. Downie of Glasgow 12% in scarlet fever and 26% in measles. Caiger 11% in scarlet fever; Burckhart and Finlayson 10% and Alderton 11% in scarlet fever and but 15% in measles.

None of the above writers have mentioned the aural complications in diphtheria. The only statistics I know of in this disease are a small number of cases observed and reported by the writer in a previous paper, viz. 1.4%. To further compare statistics in the same institution, I have collected a series of 2232 cases of scarlet fever, measles and diphtheria. Of this number, 746 cases of scarlet fever showed 11% of aural complications; 456 cases of measles 28%; and 952 cases of diphtheria 2.9%. Sixty-eight cases of mixed infection were the highest in the percentage of all middle ear complications, viz. 44%.

Such statistics will vary considerably in different epidemics with the season of the year, the institution in which they occur and the community from which the patients have come. Many of our children are brought to us from large charitable institutions and these little patients unfortunately constitute a considerable number of our seriously sick or fatal cases. On the other hand, the contagious hospitals of Brookline and Somerville, suburbs of Boston, show a marked decrease in the number of aural complications; due to the fact that the vitality of their patients is greater upon entering the hospital. This fact should be clearly borne in mind in consideration of the cases to be reported in this paper, in as much as the majority of our patients come from very poor surroundings, and consequently have a relatively low degree of bodily resistance.

From the statistics gathered thus far in clinical cases, we would naturally suppose complications of the middle ear and mastoid would follow the same relative frequency in fatal cases. The frequency is the same, but the percentage is far greater. In diphtheria, instead of 2.9% it is 82%. In scarlet fever it is 94% and in measles 100% of middle ear or mastoid involvement.

Again, we would naturally expect mastoiditis to follow the general course of the middle ear. As a matter of fact, however, the order is exactly reversed in the fatal cases. We find diphtheria least in the clinical, to be highest in the fatal cases in the number of mastoids. Thirty-one per cent. of fatal diphtheria cases showed mastoid involvement, 26% of the scarlet fever cases and but 14% of the measles cases had mastoiditis. This is a significant fact and is, I believe, the most important point in the entire subject.

Bilateral otitis media is far more common than unilateral in all the fatal cases, as is also bilateral mastoiditis in diphtheria and scarlet fever. In measles, but one case of mastoiditis occurred in the series of 7 fatal cases, and that one was unilateral.

Of the 59 cases of mastoiditis, 33 of them were bilateral, and in every case, conditions were ideal to create the severe allied complications which so often occur with undetected and untreated mastoiditis. Yet, the autopsy records show but one case of an infected jugular vein; but four cases of septic meningitis; and not a single brain abscess. This is made even more remarkable by the fact, that at least 80% of the mastoiditis cases showed edema and congestion of the brain. Edema of the brain was not confined to the mastoiditis cases, however, as it occurred in a large number of the infected middle ears without mastoid involvement and in a few cases where neither middle ear nor mastoid were infected.

The appearance of the middle ear and mastoid cells, at the time of the autopsy, present a sharp contrast between scarlet fever, measles and diphtheria when these special organs are diseased. In scarlet fever and measles the fluid found therein is almost invariably described as yellow, white or creamy pus. In diphtheria, record after record refers to it as small in amount, thick, tenacious, gummy gelatinous, semi-solid, etc. The color is also peculiar in this disease, and is described as green, yellowish green, brownish green and other colors bordering on this hue. Involvement of the mastoid cells ranges from acute congestion to absolute destruction.

Of the 59 cases of mastoiditis but 6 or 8 of them were recognized during life, and of that

* Read before the Ninth International Otological Congress, at Boston, August, 1912.

number, operation was performed on but one side when both sides were diseased. I beg to state, however, that the 59 cases of mastoiditis covered a period of nearly 15 years and that our mastoid operations upon diagnosed cases show a mortality of only 2 or 3% in uncomplicated cases.

In four cases a fistulous tract was found, leading directly from the middle ear into the cranial cavity, but in only one of these cases was septic meningitis present.

Doctors Councilman, Mallory and Pearce, in an exhaustive article on diphtheria, report the cultures made in 86 of these same autopsies as follows: In 59 cases: staphylococcus was found in 7 cases; pneumococcus in 5; staphylococcus albus in 3; streptococcus pyogenes in 4, and streptococcus aureas in 1 case. In a series of 27 cases; the diphtheria bacillus was found in 12 cases; streptococcus in 14; staphylococcus pyogenes in 5; bacillus pyocyannus in 2 cases. Generally two or more of the bacilli occurred together and, as a rule, the diphtheria bacillus occurred with the streptococcus, the staphylococcus or with both. Few pure cultures were present of any kind.

An examination of the nasal sinuses in 52 cases of diphtheria are reported in the same article. In 33 cases, inflammatory changes were present in both antra 19; both antra, sphenoid and ethmoid 2; one antrum only 7; sphenoid only 2; and in the sphenoid and ethmoid 1. In 59 of the autopsy cases, 21 acute abscess cavities were found in different parts of the body.

The question will naturally arise in your mind, why so many of the otitis media cases and most of the mastoiditis were unsuspected during the illness of the patient. It is not because the resident physicians in the hospital were negligent or careless. Whenever symptoms arose pointing to the middle ear, careful examination was made of those organs. But diagnosis of such conditions is, in many cases, extremely difficult to make. A careful daily routine aural examination of from two to five hundred patients is impossible, as physical examination of the other organs must be made at the same time. It is entirely possible to have, not only otitis media present and active without diagnostic symptoms; but mastoiditis as well. Such being the case, the attending physician cannot be criticised for failing to diagnose many aural complications.

In measles, middle ear and mastoid symptoms occur during the height of the active process, and adults are particularly liable to mastoiditis. In scarlet fever, middle ear involvement comes at any time during the course of the disease, and is by no means limited to the active stage. Adults are not especially liable to mastoiditis in scarlet fever. In diphtheria, otitis media or mastoiditis are not as active as in scarlet fever or measles, and the diagnosis is far more difficult to make for this reason.

Middle ear complications are not only of extreme importance on their own account, but because of their effect upon other complications present. When they occur with inflammations in other organs, such effections are invariably exaggerated. Thus, with active inflammation in the heart, lungs or joints, infection of the middle ear or mastoid cells, causes the symptoms in those organs to become more active and dangerous to the life of the patient. On the other hand, prompt and efficient treatment of the aural inflammation, usually causes marked relief in the inflammatory process of the other organs.

Next to bony tissue itself, bony cavities, lined with mucous membrane are among the lowest of all the tissues of the human body, in their power to cope with bacterial invasion. Because of its relatively small blood supply, the antibodies cannot reach such cavities with sufficient freedom to strongly exert their anti-bacterial properties. In both the middle ear and mastoid cells, we have not only bony cavities lined with mucous membrane, but anatomical structures particularly susceptible to infection from the nose or throat, because of their location. In case of infection, if the Eustachian tube becomes sufficiently swollen to close its lumen, the middle ear and mastoid cells become closed cavities, and we have at once a condition identical with an abscess cavity in any part of the body. The passing of bacteria from an infected middle ear into the circulating blood stream produces symptoms too well known to require further mention.

So long as the phagocytes and the anti-bodies have sufficient power to overcome the bacterial invasion, no systemic symptoms occur. This is doubtless the reason why infected middle ears occasionally smoulder for weeks before showing active symptoms.

A few years ago, attention was called to the tonsil as an avenue by which bacteria from the throat and mouth could find its way into the general circulation. The discussion pro and con of this theory lasted several years and gradually it became an accepted fact. In establishing the theory, eminent writers proved conclusively, that such effections as endocarditis, pleuritis, septic synovitis, adenitis, etc., often derived their infection primarily from a diseased tonsil. In such cases, thorough removal of the infected organ was quickly followed by permanent relief in the inflamed condition. The results of such operations were so uniformly beneficial, that they have become one of the most common procedures in our daily practices.

Up to this time we have looked upon the middle ear and mastoid cells as structures particularly susceptible to infection in the contagious diseases. When such infection occurred, however, we feared only one of two things; if moderately severe, discomfort to the patient from the pain and a strong possibility of deranged hearing later; if very severe, mastoiditis. Should the process extend still further, brain

abscess or jugular thrombosis, were the dreaded consequences to be feared. So far as I know, the middle ear or mastoid cells have never been suspected of being the primary foci of infection in the many and serious complications which so commonly occur in the contagious diseases. Yet the position of these bony cavities is identical in every way with the tonsil as an avenue of entrance for bacteria into the circulation. Anatomically their structure is ideal to produce inflammation, and their location is such as to be closely related to the specifically inflamed tissues of these particular diseases. Previously we have supposed the percentage of aural involvement to be relatively small, but the study of the fatal cases, proves them to be alarmingly high. As practically all the fatal cases showed complications in the heart, lung, kidneys, etc., as well as in the middle ear or mastoid cells, may we not suspect the two to go hand in hand, to a very great extent? Indeed we may go still further and assume one to depend upon the other.

Many of the clinical records show a sudden rise in temperature followed by all manner of complications in various organs of the body. In many of them, however, there is a period of from one to three or more days between the initial rise in the temperature and the appearance of localizing symptoms in the affected organ.

This is commonly supposed to be the prodromal stage in the inflammatory process. Often, however, with the appearance of active symptoms in the heart, lung, joint, etc., one or both middle ears show marked signs of inflammation, or spontaneously rupture. When such phenomena occur in the middle ear, it is usual to have the symptoms in other organs subside to a remarkable extent. Also the frequency with which all existing complications abate, after spontaneous rupture or free incision of the drum membrane, is significant of the powerful influence of the aural condition over other symptoms in different organs. Such being the case, may we not assume the middle ear or mastoid cells to be the point from which bacterial invasion gains access to the circulation?

In view of the increased demands upon vital organs in these diseases, their resistance to toxic influences must of necessity be lowered. Muscle tissue is not often attacked but serous cavities and joints of cartilaginous and serous membrane structure are particularly susceptible to lowered vitality and consequent inflammation. Thus the valves of the heart, the lungs, serous cavities and joints are commonly involved. If, at such a time, the middle ear or mastoid cells send bacteria into the blood stream, the devitalized organs are in a position to absorb them, and they themselves become foci of infection to still further increase the toxemia of the patient.

This is rather a new theory, but should it prove to be correct, would be of great importance. It is too broad and complicated a subject, however, to be discussed further at this time.

It is the writer's intention to make this paper mainly a collection of facts found in the records of the autopsy cases and not to discuss the theories involved.

The following cases illustrate the prominent rôle played by the middle ear and mastoid cells in the contagious diseases.

Case I. A. J., 3 weeks old. Diphtheria. Admitted to hospital Jan. 6, 1908. Was not very ill. Had no special symptoms until March 6, when she began to cry continuously. Ears examined and found normal in appearance. March 13 temperature rose to 103. March 14 edema of the scalp and chest with marked inflammation of these areas. March 17 temperature again normal. March 19 died without any special symptoms.

Autopsy.—Acute pericarditis-pleuritis-peritonitis. Both middle ears contain an acute process which consists of an elevated pink excresence. (Note on record reads.) It would appear the lesions in the ears are primary and the lesions elsewhere in the body are secondary to this.

Case 2. I. N., 2½ years old. Diphtheria. Child was sick for three weeks before admission to the hospital in April, 1910. She was an undeveloped, underfed baby in critical condition. Marked prostration. Nasal discharge. Slight dullness at base of right lung. Pulse rapid and weak. No vomiting. Temperature 101.6 April 8. Pulse dropped to subnormal. Heart action very weak with gallop rhythm. Failed and died. Child was too sick to make careful examination at any time.

Autopsy.—Broncho-pneumonia. Acute pericarditis. Empyema. Acute peritonitis. Both middle ears and mastoid filled with creamy, yellow pus. South Department record gives cause of death as diphtheria and empyema.

Case 3. R. W., ? years old. Diphtheria. Admitted to hospital July 27 with typical diphtheria symptoms. Temperature 101.6. Slight nasal discharge. Aug. 8 developed a gallop rhythm of the heart. Cold extremities. Some vomiting, etc. From this time on patient continued to gain and was very comfortable. Temperature practically normal. Sept. 8. Today shows marked weakness. No special symptoms. Following day died, apparently from paralysis of respiration.

Autopsy.—Slight edema and congestion of the brain. Chronic appendicitis. Chronic pleuritis. both drum membranes intact. Both middle ears contain small amount of gummy, yellowish fluid. No reason to suspect ears during life.

Case 4. A. D., 17 months old. Diphtheria. Admitted to hospital Aug. 10, 1906. For past week has been fretful. No vomiting. Marked dyspnea and prostration for 24 hours. No dullness in lungs but has moist coarse râles. Pulse rapid and weak. No evidence of laryngeal stenosis. Marked pallor and cyanosis. Gradually became comatose and died same day. Ears examined and found normal.

Autopsy.—Broncho-pneumonia. Edema and softening of brain. Chronic pachymeningitis. General lymphoid hyperplasia. Both middle ears con-

tain purulent fluid extending into the mastoid cells on the right.

CASE 5. R. C., 1 year old. Diphtheria. Admitted to hospital Dec. 10, 1909. Was not very ill. No nasal or aural discharge. Temperature 99.6. Dec. 18. Since yesterday patient has been greatly prostrated. Poor pulse and slight rise in temperature (101). Heart and lungs negative. No special symptoms of any kind, except stools show pathological conditions. Grew gradually weaker and died the next day.

Autopsy.—Edema of brain. Acute otitis and mastoid. Right middle ear contains thick, gelatinous yellow pus. In left is dark brown fluid. Same condition in mastoid. Culture, streptococcus.

CASE 6. J. G., 2 years old. Scarlet fever. Admitted to hospital on April 29, 1900. Marked prostration. Temperature, 104.8. Cervical glands indurated. Heart action rapid but regular. Lungs normal except few slight scattered râles. May 7, marked septic temperature since last note. Has grown steadily worse. Heart rapid and feeble. Lungs filling up with fine and coarse râles. May 30, condition steadily growing worse. Lungs filling up. Died. Temperature 105.

Autopsy.—Mastoiditis. Meningitis. Lungs not specified in autopsy report.

Anatomical Diagnosis.—Acute otitis media and mastoid. Acute ethmoiditis and sphenoiditis. Both middle ears and mastoid filled with pus. No aural symptoms in records.

CASE 7. L. G., 12 years old. Scarlet fever. Admitted to hospital on March 31, 1909. Marked prostration. Temperature 103. Pulse 120. Semiconscious and very restless. April 6, spontaneous rupture of right ear. April 8, much better breathing, pulse, etc. Mental condition also improved and is quite comfortable. Apr. 12, spontaneous rupture of left ear. Both now discharging. April 16, failing rapidly. Profuse discharge from both ears. April 24, swelling and edema over left mastoid. Mastoid opened. Right mastoid shows no symptom of being involved at this time. Temperature 105. April 28, temperature at 104. Conditions remain the same. May 3, continued to grow weaker and died.

Autopsy.—Pleuritis. Endocarditis. Nephritis. Both middle ears and both mastoids filled with pus. Both ethmoids and sphenoids also infected.

CASE 8. R. S. C., 8 years old. Scarlet fever. Admitted to hospital Nov. 6, 1905. Physical examination negative at time of entrance except scarlet fever rash. Following day became much prostrated. Temperature rose to 103. Had marked delirium, etc. During the night both ears ruptured spontaneously. Temperature rose steadily for two days and conditions became worse. Two days later developed slight facial paralysis on right side. White count 21,600. Right mastoid opened and no free pus found. Some rough bare bone in middle fossa.

Autopsy.—Septecemia. Acute nephritis. Acute pleuritis. Double mastoiditis. One operated on.

CASE 9. M. L. C., age 12 years. Scarlet fever. Admitted to hospital Dec. 19, 1908. Patient is delirious. Pulse 103. Râles over both lungs and slight dullness at the base of the right lung. Dec. 26, condition has been the same until today, when she is brighter and less delirious. Marked septic temperature still. Dec. 30, again delirious and much weaker. Patient continued with septic temperature in same condition until Jan. 7, when she died. Few hours before death showed slight facial paralysis.

Autopsy.—Acute pericarditis. Acute bronchitis. Congestion of the lung. Left middle ear filled with pus. Right middle ear and mastoid filled with pus.

CASE 10. M. H., 2 months old. Diphtheria. Admitted to hospital Sept. 21, 1907. Not very ill, and continued to gain until the 29th, when she suddenly began to fail. Some vomiting at this point. Does not take nourishment well. Sept. 30, died without any special symptoms. Temperature normal. No symptoms pointing to ears at any time.

Autopsy.—Broncho-pneumonia. Edema of the brain. Both middle ears and mastoids contain pus.

Cases 1, 3, 5 and 10 illustrate a peculiar state of affairs. All were diphtheria patients and each of them was not especially ill upon entrance to the hospital. Each improved or showed no symptoms for sixty-seven, forty-four, eight and ten days respectively. Then they developed weakness or prostration and gradually died without definite symptoms of any kind. The autopsies showed all of them to have had double acute middle ear disease; and three of the four cases, either single or double mastoiditis. Not one of the four showed any reason to suspect the middle ear during life.

Cases two and four were also diphtheria patients and were very much prostrated on admission to the hospital and died the same day. Both had severe complications in other organs, which may have been secondary to middle ear infection or mastoiditis, both of which were present in each case. In neither case was the ear suspected of being diseased during life. Elevated temperature was present, but was attributed to heart, lung or kidney inflammation, which was present and active.

Cases 6, 7, 8 and 9 were all scarlet fever patients and showed a marked contrast to the diphtheria cases. Each of them was very septic on admission; each had high temperature and severe complications other than the middle ear or mastoid. All four of these cases had mastoiditis unsuspected on either one side or both. The question may again be raised as to whether the primary infection was not in the middle ear or mastoid cells, and the inflammation of the heart, lung or kidney secondary to them. In support of this theory may be cited cases 2 and 8, in which the records state; either free paracentesis or spontaneous rupture was followed by immediate and "marked relief from vomiting, difficult breathing and high temperature."

In cases 6 and 9, neither middle ear or mastoid was suspected during life; both, however,

had pus in the mastoid cavity. Cases 7 and 8 had a mastoid operation on one side, not followed by relief of symptoms. At the autopsy, the opposite side in each case was found to be filled with pus. Neither of the unsuspected mastoids had the ordinary symptoms during life.

Granting middle ear complications to be of greater importance than we have believed them to be in the past, we face a very ugly question. Diagnosis is extremely difficult and treatment in many cases would be equally hard to carry out. A study of the clinical records of these autopsy cases prove symptoms to be practically *nil* in many instances. The common every-day methods of diagnosis are not at our disposal to make use of. As you have observed, most of the fatal cases mentioned occurred in very young children. All of them were under 12 years of age and many of them under two years. The sensation of pain is eliminated from the situation. Restlessness or fussiness are occasionally seen, but can never be depended upon. Swelling of the posterior wall of the canal is impossible as the young child has no bony wall. Swelling of the drum membrane and edema over the mastoid are positive signs of diagnosis only when present; as the autopsy records plainly demonstrate, pus may be present in either middle ear or mastoid, with no suspicion of these two symptoms present.

Either one of two courses is open to us. We must of necessity develop new and improved methods of diagnosis, or fail in our mission as aurists in these particular cases.

The newer methods of diagnosis are scarcely available for several reasons. It would be somewhat difficult to x-ray these cases on account of the ages of the patients. Such a procedure at the bedside of very sick cases, would be practically impossible. Patients with contagious diseases would never be allowed in special x-ray rooms, and no x-ray machine I know, could be carried into a contagious hospital. The only solution of this problem would be a special x-ray room for the particular purpose. The x-ray, so far as I know, is an untried experiment in such cases, and probably would be of little value, except possibly in the very acute scarlet fever and mastoid cases, wherein a large amount of pus is present. In view of the extreme necessity, however, for new methods of diagnosis, the x-ray should be tried out.

The Mosher transillumination method would be ideal if we had adults and not very young children to deal with. The apparatus is simple, small, could be easily sterilized, and taken from one patient to another. It would further have the advantage of being used at the bed of very sick patients, without moving or otherwise disturbing them. In its present form, however, it is useless in the class of cases we most desire to use it upon, because of the age of the patient. Some modifications of this instrument may be developed, and it would be of the greatest assistance. In fact at the present time, a modification of this instrument is about the only hope I see upon the horizon of these cases.

In view of the large percentage of aural involvement in very sick and fatal cases, the closest possible watch must be kept on the middle ear. Naturally such close observation will be rewarded by finding many inflamed and swollen drum membranes. Once determined, this condition is easily handled; but as distinct stereotyped symptoms are lacking, the observer must be prepared to note the merest suspicion of trouble in this locality and possess sufficient skill to note the slightest trace of altered natural conditions.

With active symptoms present in any organs of the body, particularly in the heart, kidney, pleura or joints, suspicion should be directed to the middle ear as the original focus of infection. If prominent symptoms are present in this locality, prompt and radical measures must be taken to overcome them. Should one fail to find the common symptoms of inflammation in the middle ear or mastoid cells, those organs are by no means free from suspicion on that account. It is possible, the appearance of an infected middle ear may be altered at different hours of the day and night. An apparently normal looking drum membrane in the morning, may have a different appearance in the late afternoon or evening. It would be interesting to know whether or not there was any change in the appearance of the middle ear at the time of the two extremes of a septic temperature; providing of course the fluctuation was inflamed by aural conditions.

In the treatment of such cases, there is but one course, viz. wherever pus is present, it must be thoroughly drained. This sounds simple enough to any physician reasonably familiar with aural work; but it fails to be as simple as it would first appear. To establish drainage in a comparatively healthy patient is simple enough, but to keep such drainage open in a very sick patient is an entirely different matter. Repeated incisions of the drum membrane are often called for and should be resorted to as long as necessary. Ether operations should of course be avoided as much as possible when important organs are involved; but they are never absolutely contra-indicated when necessity demands. This has been proven many times in the Boston City Hospital. Very sick patients will take ether better than would be supposed. The free drainage of pus, with its attending toxins, will do far more good, than ether with its irritation to inflamed tissue will do harm.

Ice bags should never be used in seriously ill patients in the contagious diseases. Symptoms in the middle ear or mastoid should be encouraged as much as possible. Ice bags or other methods of cold applications very effectually mask such symptoms and should be absolutely avoided. Over-conservatism will jeopardize the life of the patient. Treatment must be broad-

minded, courageous and thorough. It must also be prompt and decisive. Hours count tremendously in this respect. Toxins must be eliminated before the system is overwhelmed to the point from which it can never recover. Unlike pneumonia, typhoid, tonsillitis, etc., this is not a self-limited process. The moment the pus is liberated, the toxins cease to be absorbed to any extent, and if the patient has sufficient vitality, the ones already in circulation will be taken care of by nature herself.

The matter of prompt and thorough treatment cannot be too strongly emphasized. The failure of present day treatment in many cases, is a lack of skillful diagnosis in the first place and failure to promptly relieve dangerous symptoms in the second place. Practically every case of brain abscess and every infected jugular vein is the result of failure to diagnose and treat comparatively simple conditions in the early stages.

CLINICAL CASES.

SCARLET FEVER.

Total number of cases	746
With otitis media	65—11%
Without otitis media	681

MEASLES.

Total number of cases	456
With otitis media	125—28%
Without otitis media	331

DIPHTHERIA.

Total number of cases	962
With otitis media	28—2.9%
Without otitis media	934

MIXED INFECTIONS.

Total number of cases	68
With otitis media	30—44%
Without otitis media	38

2232 cases in all.

333 AUTOPSIES.

	DIPHTHERIA.		SCARLET.		MEASLES.	
Total number of cases	214		106		13	
Head not opened	51		24		6	
	163		82		7	
Ears negative	29		5		0	
	134		77		7	
Percentage of aural involvement when conditions were noted in the records	82%		94%		100%	
AURAL COMPLICATIONS.						
A.—Unilateral otitis media	32	69%	12	74%	1	86%
B.—Bilateral otitis media	61		46		5	
C.—Unilateral mastoiditis	19	31%	8	26%	1	14%
D.—Bilateral mastoiditis	22		11		0	
	134		77		7	
BRONCHO PNEUMONIA.						
Total number of cases	57		23		8	
Ears normal	13—23%		2— 9%		1—12.5%	
	44—77%		21—91%		7—87.5%	
A.—Unilateral otitis media	12	59%	4	74%	2	100%
B.—Bilateral otitis media	14		13		5	
C.—Unilateral mastoiditis	5	41%	1	26%	0	
D.—Bilateral mastoiditis	13		3		0	
LOBAR PNEUMONIA.						
Total number of cases	13—92%		1		0	
Without otitis media	1— 8%		0		0	
A.—Unilateral otitis media	0	66 2-3%	0	100%	0	
B.—Bilateral otitis media	9		1		0	
C.—Unilateral mastoiditis	1	33 1-3%	0		0	
D.—Bilateral mastoiditis	2		0		0	

THE DIAGNOSIS OF FEEBLE-MINDEDNESS AMONG IMMIGRANTS.

BY J. G. WILSON, M.D.

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THE differential diagnosis of the high grade feeble-minded individual from the normal is an exceedingly difficult and complex problem. There are all grades of human intelligence, and these grades group themselves into strains which are hereditary and can be traced with a fair degree of accuracy through successive generations. There is the strain of high intellectual ability which is easily recognized. This is followed by the middle grade or average, which is in turn to be differentiated from the feeble-

minded stock. This differentiation of the high grade feeble-minded individual, or moron, from the person of only average intellectual capacity is rendered all the more difficult by the fact that we have not yet an entirely satisfactory understanding of what really constitutes the moron. To say that he is a person whose intellectual development is permanently arrested somewhere between the ages of eight and twelve years seems to convey a definite idea, but, when dealing with immigrants it is open to the objection that the standards of intelligence vary with different races. "Ontogeny recapitulates phylogeny," and the forests of Africa have whole tribes which are entirely composed of morons. While there is no immigration from the wilds of Africa, there is a stream from certain parts of Europe that appears to be composed of persons whose intellectual development has stopped short of the average standard of our own people.

It is entirely proper to require that the immigrant shall measure up to our own standards of mental capacity rather than to those of his own country. To freely admit mentally inferior *individuals* because of the fact that they come from a mentally inferior *race* would be an extremely unpatriotic policy. The influx of bad foreign blood would tend to undo whatever good the practice of Eugenics at home might accomplish. But while in no way advocating the lowering of the standard, or a letting down of the bars to the mentally unfit, I think that we should be extremely cautious not to confound dense ignorance with inherent mental incapacity. The difficulties in the way of diagnosing the immigrant *moron* from the immigrant *ignoramus* are chiefly those which arise on account of differences in the language and the racial viewpionts of life's problems. These differences are so great that it often requires an extraordinary amount of time and patience before a definite conclusion can be reached. Besides time and patience, and a general knowledge of the subject, it often helps to invoke the aid of some of the special methods devised for the determination of intellectual standards.

According to Binet and his followers we are able to classify with a fair degree of accuracy the intellectual capacity of a given individual by requiring him to perform a series of mental tests which have been found to be readily accomplished by the average person of his age. The Binet system seems admirably adapted to the diagnosis of feeble-mindedness among people who have been brought up in the same or a similar environment as the persons among whom his original experiments were conducted, that is, the environment of the French school children.

With slight modification Goddard has successfully applied it to our own children. There seems no doubt about its practicability as an aid to the diagnosis of the degree of mental ability of the average American, but when it comes to its application to the examination of immigrants there is a grave question as to its fairness when relied on alone.

Even though the essential phenomena of feeble-mindedness be the same among all races it does not necessarily follow that these can be best elicited in every case by identical methods. The congenitally feeble-minded of all races, almost without exception, respond to external stimuli. But this response does not bring about normal reaction. They lack in co-ordination. In the realm of thought this is shown by the lack of constructive imagination. In common with the normal mind the brain of the defective is capable of imaging past experience. That is to say, he has the reproductive imagination developed. He is also able to locate the image in point of time and place, and is therefore gifted with the power of memory. Often the higher grades of imbeciles and morons are gifted with exceptionally good memories. The presence of this faculty is therefore no evidence of normality nor any adequate test for the degree of intelligence. But all grades of feeble-minded from the highest to the lowest are greatly lacking in constructive imagination. In other words they are unable to put together in new combination the images of past experiences. This faculty of constructive imagination more than any other underlies the normal intelligence. It has been claimed that the Binet tests are especially adapted to the determination of the presence or absence of this faculty. The advocates of this method state that the tests are in reality not an index to the education of the individual so much as they are to his inherent capacity for education.

For several months past the Binet test has been applied to immigrants as the opportunity offered. Out of 92 who were certified by the examining physicians as mentally deficient during the months of October and November, 1912, this method was used in whole or part as one of the aids in determining the diagnosis. Besides those certified as mentally deficient during these two months there were 2393 examined in the same way who were determined to be normal. Making all due allowance for difficulties of interpretation and strangeness of environment, I think that the Binet tests should not be solely relied upon either for the determination of the normal intellect nor the higher grades of feeble-mindedness among immigrants. For idiots and low grade imbeciles they are practical enough, but these low grades are easily determined by other methods and without any special apparatus.

The following copy of the mental examination of an alien is instructive and typical of the way the Binet system may fail to bring out the constructive imagination of the alien, whereas an examination conducted along other lines will place him in his proper class.

BINET EXAMINATION.

D. S. Male, 20 years old, Ruthenian. Cannot read nor write. No schooling. Farm laborer.

Six-year Old Test.

1. Morning or afternoon? (Correct.)

2. Define fork, horse, table, chair, mama. (Correct.)

3. Executes three simple commands. (Correct.)

4. Shows right hand. Left ear. (Correct.)

5. Chooses prettiest of three pictures. (Correct.)

Seven-year Old Test.

1. Counts 13 pennies. (Correct.)

2. Describes pictures. (Very poor.)

3. Sees that pictures lack eyes, nose, mouth and arms. (Had to be helped.)

4. Copy of diamond. (Very imperfectly done. Never had pencil or pen in hand before.

5. Recognizes colors—red, blue, green, yellow. (Correct.)

Eight-year Old Test.

1. Compares wood with glass, horse with cow; paper with cloth. (These comparisons were not spontaneously given. He had to be helped so much that his answers would probably have been called a failure by most examiners.)

2. Repeats days of week. (Correct.)

3. Stamps. (Incorrect.)

4. Repeats 43795. (Incorrect.)

5. Counts backwards from 20. (Incorrect.)

Nine-year Old Test.

1. Makes change 20 cents less 4 cents. (Incorrect.)

2. Definitions (these were given in terms of use only and very poorly even in this way.)

3. Knows date. (Incorrect.)

4. Knows months of year and repeats them. (Incorrect.)

5. Arranges a series of four weighted blocks in order. (Incorrect.)

As indicated in the foregoing resumé of the Binet tests to which this man was subjected, he was mentally on a par with a child of not more than 8 years at the most liberal estimate. In other words, he was, according to the Binet standard, a high grade imbecile. However, when subjected to the comprehension tests in the 10-year old group he showed so much evidence of possessing more than a modicum of common sense that the examination by the Binet plan was abandoned and he was examined by asking him the following questions.

"If you had missed the ship you came on what would you have done?"

"I would have had to return home."

"To whom are you going?"

"To an uncle."

"Suppose, for the sake of supposing an unlikely thing, that when you get to the house of your uncle you should find he is dead and that there is no one to receive you, what would you do?"

"I shall grieve very much if anything like that should happen."

"Which is worse to lie or to steal?"

"To steal." After a moment's thought the alien says, "One ought to keep things locked up so they cannot be stolen."

"If you broke something that did not belong to you what would you do?"

"Tell the owner and ask pardon."

"What makes a ship move through the water?"

"I don't know."

"Did you ever ride on a train?"

"Yes, once."

"What made the train go?"

"Steam."

"Now tell me what makes a ship move through the water?"

"I don't know."

"What do you *think* makes it go?"

"I think it is steam."

"What is this?" (pointing to a shoe).

"A shoe."

"What is the shoe made from?"

"From leather."

"What is leather made from?"

"From hides of horses, cows and sheep."

"What is this?" (pointing to a pair of trousers).

"That is wearing material,—cloth."

"What is it made from?"

"Wool."

"Where does wool come from?"

"We get it from ships, I mean the ships bring it to us."

"Yes, I know, but where does the wool come from in the first place?"

"It grows."

"Does it grow on animals or is it a vegetable growth?"

"It comes from animals."

"Where does the sun rise?"

"Over there to my right."

"Where does it set?"

"Over there to my left."

"Where does it go over night?"

"In the heavens."

"Were you brought up on a farm?"

"Yes."

"Now, you have seen horses and cows lying down, haven't you?"

"Yes."

"Tell me the difference between the way a horse and a cow get up when they are lying down."

"A horse rises on his front feet first, a cow gets up on her knees and then on her hind feet."

A comparison of the answers to the Binet questions with those given to the foregoing queries in regard to subjects with which the alien had had practical experience, shows that absolute standards for determining mental capacity must be used with great discretion. A casual inspection of this alien's mental attitude and general appearance indicated that he was backward or stupid, to say the least. A careful examination and observation for several days convinced me that in reality his powers of observation and his constructive imagination simply had lacked opportunity for development. His power of attention was poor, but he had never had need to apply himself to any of the details of a complex daily life. His intellectual and moral judgments were fair and there seemed no good reason to believe that he would not soon react normally to his complete change of environment and be able to earn his living unaided, which is, after all, the great practical criterion in determining the mental capacity of the individual.

It must be admitted that as a rule those aliens who make such a complete failure of the Binet examination, do not make such a good showing when questioned by the "common sense" method. I have purposely chosen this extreme case in order to indicate the danger of relying on this standard alone.

Realizing the great difficulties in the way of drawing conclusions from tests which have been primarily devised for determining the mental calibre of persons who have lived in an environment of education, whether they themselves have attended school or not, it has occurred to several investigators that some plan should be devised to gauge the capacity of those who have not had the benefit of association with any but the illiterate. In looking over many of the puzzles and problems devised with this end in view, it occurred to me that Healy's Rack test would perhaps be of some practical value in the examination of immigrants. According to the authors of this method, it is designed to "bring out perception of relationships of forms, and, also, the individual's method of mental procedure for the given task—particularly his ability to profit by the experience of repeated trials, in contradistinction to the peculiar repetition of impossibilities, characteristic of the subnormal and feeble-minded groups."

Healy and Fernald state that they found that most of their twelve-year old children were able to do this puzzle in time ranging from 12 seconds to 2 minutes. As the time element is admittedly of less importance in doing the problem than the way in which the person attempts to do it, I determined to give every immigrant who tried it all the time he wanted and to insist that he should not give it up before it was obviously simply a matter of luck as to whether he would eventually succeed or not. One hundred adult immigrants were subjected to this test. They were taken at random from those who had been set aside by the physicians making line inspection, as persons who looked or acted in a way that made them think it possible that they were in reality below par mentally. Of the hundred thus picked out all but seven were subsequently determined to be in reality perfectly normal in their mental make-up. Of the seven who were found to be feeble-minded, six were unable to do the test. But on the other hand 13 of the normals made as poor an attempt to do the test as did any of the feeble-minded, while one of the feeble-minded had comparatively little difficulty in getting the puzzle together. Observation of the way intellectually normal aliens attempt to solve the Healy Rack Puzzle gives the impression that it has some value as a diagnostic measure in determining that the alien in question is normal; but that it is not of much practical use in determining abnormality. In the total of 87 who did the puzzle without difficulty, all but one were mentally normal. But one must not lose sight of the fact that there were thirteen normals who could not do the test. A fair conclusion would seem to be that the man who can do it quickly and without false moves usually turns out to be all right, whereas the one who blunders at it and fails may or may not be deficient in other ways.

So it seems to me that every artificial aid to determine mental ability of the alien must be used with great caution and considered as an adjunct only to a general examination which considers the reaction to his environment under all conceivable circumstances. To determine this one must bear in mind the general truth of the proposition that if the alien reacted normally to the environment to which he was accustomed at home, he will probably do the same in his new surroundings within a reasonable time. Therefore, any tests to be applied with success should have an air of familiarity about them. The mere appearance of the apparatus to a man who has never seen or probably never heard of anything of the kind, may serve to so confuse him that he will be absolutely unable to do himself justice.

Likewise, the fact, that a grown man does not know the simple things which are matters of every-day knowledge to even our children, should not of itself be construed as evidence that he is feeble-minded. If a native-born citizen from the state of Ohio should depart from his home by train, board the Lusitania at New York and after five days on the water arrive at London; and then, in response to questions put to him by English officials, say that Columbus was the capital of the United States, that he did not know how long he had been en route,

that he had never heard who was the president of the United States and that the name of the ship he came on was Mr. Cunard, we should certainly be justified in saying that this man was mentally deficient. But if a Sicilian peasant were to give us the same answers the same conclusions would not necessarily follow. I say Sicilian because he represents this peculiar type of ignorance. The Russian Jews, Slavs from Austria and Russia, as well as the peasants from the Balkan states could all be chosen to represent other types of ignorance which would be just as suggestive of feeble-mindedness were they encountered among our own people. Out of 100 non-English speaking adult immigrants who were subsequently determined to be mentally normal, there were 43 who did not know the name of the ship on which they came. Out of this same hundred there were 32 who could not count backward from 20 and who were apparently unable to grasp what was meant by the request, even when a conscientious effort was made to explain it to them.

The more carefully one studies the whole question of feeble-mindedness among immigrants the more he will become convinced that the diagnosis must be established by a careful weighing of all the evidence which every reputable method of examination can furnish. The Binet tests, the Di Sanctis tests, the apparatus of Healy and Fernald are all useful as adjuncts and are especially valuable in determining the lines along which the alien should be especially examined and in helping one to come to a rapid conclusion. But upon whatever method or combination of methods the examiner finally comes to place the most reliance, he should always bear in mind the fact that what he really desires to determine is whether or not the alien is lacking in one or more mental traits which will make it impossible for him to assume his normal relations to society. With this idea uppermost in his mind he will gradually learn to interpret the findings of the very valuable artificial aids in their true light and will not place undue significance upon the apparent absence of mental ability in any one particular field.

Finally, however difficult the problem of determining the mental status of the immigrant may appear, it is in reality not a hopeless task. The obstacles to be overcome are those which increased facilities for examination can readily surmount. There is a remarkable unity of opinion among all those who have had experience with this particular line of work as to just what is needed to perfect the system.

The aids to diagnosis, the proper interpretation of findings, and the general situation are all well in hand. The one thing lacking is a larger force of trained men and interpreters and a place for them to work. These things take money and so far Congress has failed to adequately provide the funds which the exigencies of the case require.

PERSISTENT MOUTH BREATHING FOLLOWING ADENOIDECTOMIES.

BY IRVING SOBOTKY, M.D., BOSTON.

WHY are there so many failures after adenoidectomies and what can be done to facilitate nasal breathing? How often patients return anywhere from one to six months after operation with little or none of the nasal respiration that was so emphatically promised!

Parents are told to compel the young patient to breathe through the nose—that it is simply the "habit" of mouth breathing, formed from birth to the present time, that prevents nasal breathing and if the child is constantly told to keep the mouth closed and force air through the nostrils—a cure will be effected. This may be true in some cases but in many the difficulty lies in abnormal conditions within the nasal cavities. It is obvious, then, that simply removing the adenoid, however completely, will not cure mouth breathing when there is nasal obstruction of any cause.

J. V. White[1] speaks of variations of the sphenoid bones, of the location of the fossa of Rosenmuller and of Thornwald's disease, as factors determining the post-operative mouth breathing. Maure gives similar reasons. Another factor according to Brühl of Berlin, is delay in removing the adenoid until the bony framework is formed with a high palatal arch. In these high arch cases, mouth breathing will persist after operation and the patient must be referred to a dentist for the spreading of the arch and the regulating of the teeth. These conditions are also the cause of deviated septum, as there is not sufficient room for the septum to grow straight. This type of case can usually be recognized by the elongated shape of the face and skull.

An examination of the nose, which should be a matter of routine in every case of adenoid, will often reveal hypertrophied lower turbinates or deviated septum. The presence of enlarged lower turbinates, deviation and spur of the septum are said to favor the development of adenoid, but, according to St. Clair Thomson of London, it is much more likely that these intra-nasal conditions are secondary. Diemont[2] expresses the same opinion and has observed the co-relation of hypertrophy of the lower turbinate with adenoid.

By enlarged turbinates a true hypertrophy is meant and not the vaso-motor type or the enlargement caused by constitutional diathesis. These three types can be differentiated by a thorough examination.

The vaso-motor lower turbinates are pillow-like, smooth, red or pinkish in color and may seem to be in contact with the septum or with the middle turbinates. A probe sinks as if into an air cushion. The application of adrenalin and cocaine causes shrinking, but when the ef-

fect of the solution has worn off the turbinates swell to their former size.

The truly hypertrophied turbinates are not smooth but nodular and pebbly and resemble adenoid vegetations. In color they are pale pink. Adrenalin and cocaine does not produce marked contraction and probe pressure does not cause pitting but gives the sense of resistance of thick, fleshy tissue. This condition is caused by an hypertrophy of the adenoid layer of the mucosa.

The hypertrophy caused by constitutional disease (syphilis) is hard to distinguish from a true hypertrophy unless a close view shows some ulceration. This type with insignificant ulceration is not rare and should always be borne in mind.[2]

The question now arises what can be done to facilitate nasal breathing in these cases? Labourè advocates a complicated system of breathing exercises including the immobilization of the free moving parts of the thorax.[4] It would seem that this method is not suited for children, hence operative treatment of the nasal condition gives the most promise of benefit.

If the nasal examination shows a deviated septum, should a sub-mucous resection be considered when the patient is under sixteen years of age? It is better to wait at least until that time in life has been reached because we could not be certain what influence the sub-mucous operation might excite upon the development of the nose; also, more regenerative tissue forms, after this operation, in children than in adults, and the object of the treatment might then be nullified. Freer, however, operates on quite young children.

It is in cases, where the type of truly hypertrophied lower turbinates, previously referred to, are found and where there is no considerable deviation of the septum, that a simple operative procedure has shown good results.

There is at present a disinclination to do turbinotomies or turbinectomies unless a positive indication exists, such as obstruction to the drainage of the accessory sinuses of the nose or polypoid degeneration of the turbinate. The tendency to an atrophic nasal condition which so often results, is in no way desirable. Stewart[5] says an inferior turbinate should never be entirely removed. In cases of too free removal, the loss of its moistening and filtering action produces the discomfort of dry pharyngitis and laryngitis.

However, using the turbinate scissors and simply cutting a slice of the thickened mucous membrane of the inferior turbinate along the lower and posterior portion, parallel to the long axis of the bone, and being extremely careful not to cut the bone itself, will not cause atrophic changes. The healing will leave a linear surface scar and the cicatricial contraction will widen the nasal cavity enough for all breathing purposes. This operation should be done at the same time the adenoid is removed and must be the first procedure so as to avoid clouding of the nasal cavities by blood. The nares need not be packed as the bleeding soon stops, but it is well to keep cargile membrane between the operated turbinate and the septum to avoid the formation of synechia. This treatment should not be undertaken during the age of puberty in male or female, as at this time the entire nasal mucous membrane is in a state of turgesence and cauterization or removal of tissue should be deferred.

Kyle says that electrolysis, using the bi-polar method, has given favorable results and has the advantage that tissue is conserved, there is little reaction and no danger of synechia. But this treatment requires frequent sittings and is, therefore, tedious and extremely difficult with children.

According to Freer, the use of the galvanic cautery is unsatisfactory and this opinion is shared by St. Clair Thomson who says that the galvanic cautery destroys a certain amount of epithelium and the steam and heat it produces causes a reaction in the surrounding tissues and makes it difficult to limit its area of reaction.

SUMMARY.

The writer wishes to emphasize these points:

1. For the cure of persistent mouth breathing the nasal breathing exercises have not proven efficient.

2. An operative treatment of the nasal condition is indicated. Such treatment must be appropriate for the age of the patient.

3. Patients should have the adenoid removed before the typical high palatal arch is formed.

4. If this high arch is formed the treatment should be dental; such as spreading the arch and regulating the teeth.

5. Cutting a slice of mucous membrane from the enlarged lower turbinates, as an aid to nasal respiration, has given good results.

6. A sub-mucous re-section should not be done in children under sixteen.

7. Electrolysis, using the bi-polar method, is effective in reducing the enlarged turbinates but is not suited for children.

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A NOTE ON THE HISTORY OF RETROGRADE CATHETERIZATION IN RUPTURES OF THE URETHRA.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

THE reason for this short historical item is due to the fact that a certain number of American and German writers attribute the honor of having devised this operation to Brainard of Chicago, in 1849. That this is erroneous we shall show, because this operation was done about one hundred years before the Chicago surgeon attempted it.

It was Verguin of Toulon, who first, in 1757, performed retrograde catheterization of the urethra in a case of traumatic rupture of the canal. A sailor was admitted into his service, having fallen astride a mast. After having vainly tried to pass a sound, and as retention of urine continued even after a perineal incision had been made, Verguin operated as follows: The bladder was punctured above the pubis and a cannula was introduced and left *in situ*. A few days later he introduced a catheter through the cannula to the neck of the bladder and made it protrude through the perineal wound. This catheter served as a guide to the sound which was passed into the bladder and allowed to remain. Three months later the patient left the hospital completely cured.

The above report is due to Chopart, who gives it in his work on diseases of the urinary tract, and although the operation was new, it made little impression in France or elsewhere.

In 1813, Souberbielle was led to perform retrograde catheterization, but as he was ignorant of Verguin's case he considered himself the inventor of the operation. Fine of Geneva, in 1809; Gurdon Buck of New York, in 1843; Chassaignac of Paris, in 1844; and Guersant, in 1847, resorted to retrograde catheterization in traumatic ruptures of the urethra. As is seen, all these surgeons performed the operation before the date of Brainard's operation, namely, in 1849.

Now, to continue with the history of the operation. Voillemier in 1857 resorted to it in a case of ruptured urethra; Giraldès, in 1867, had recourse to the same procedure; while, in 1875, Volkmann operated by this technic on a seven year old child for a rupture of the urethra and perineal abscess.

Up to 1874, retrograde catheterization was done by making a suprapubic opening of small size, and Péan was the first to perform suprapubic cystotomy as the first step in vesico-urethral catheterization. Up to this time the procedure was only possible in cases of retention of urine with a distended bladder, or when a suprapubic fistula was present, as happened in Voillemier's patient.

In 1880, Neuber introduced a metallic sound through a suprapubic fistula in a case of rupture of the urethra from fractured pelvis, and obtained a complete cure. Then in 1881, Lawson in England resorted to the same device on a man fifty-five years of age with a urethral rupture. From this time on the operation became developed until the present time, when its indications have been decided upon and the technic perfected.

Were the medical profession more versed and interested in the history of the healing art, such errors as the one referred to would not be constantly occurring, as is now unfortunately the case.

Symposium.

ON THE RELATIONS OF DENTAL AND ORAL HYGIENE TO HEALTH.

THE TEETH AND THEIR RELATION TO THE BODY.*

BY GEORGE H. WRIGHT, D.M.D., BOSTON.

WE shall consider the definite relations which are of special interest to the general practitioner:

First. The Relation of the Development of the Teeth to the Tonsils and Other Glands.

SUMMARY.

Tonsils are lymphoid structures.

Diseased teeth may be a source of infection and enlargement of glands and tonsils. Tonsils become enlarged without infection or disease whenever (*a*) the first group of temporary molars at two years of age are in process of eruption; (*b*) at six years, when the first permanent molars, and at twelve years, when the second molars are active in eruption.

General practitioners of medicine, district nurses and physical examiners of school children in particular should learn the years when to expect these teeth.

Where there has been no previous history of recurrent tonsillitis and tonsils are simply enlarged, the periodicity of the eruption of teeth should be considered.

Second. Teeth and Deformities of the Nose and Face.

The importance of the superior maxillary is to be recognized, and particular attention must be given to the transverse facial suture. With these observations carefully in mind, with due attention to the histological structure of the superior maxilla, we are in a position to judge of the relative merits and importance of measurements which shall be made within the nose in conjunction with readjustment of the maxillary bone. An instrument is here shown by the use of which three measurements may be obtained and results of its application and use in actual cases are here presented.

* Dr. Wright's address was a summary of his address upon this subject at the annual meeting of the Massachusetts Medical Society, June 12, 1912, which was published in full in the BOSTON MEDICAL AND SURGICAL JOURNAL, December 5, 1912.

ORAL PROPHYLAXIS.

BY HERBERT W. ADAMS, M.D., D.D.S.

It would be difficult to say just when the idea of preventive dentistry was born, or to whom, if to any one person, the credit belongs, but it would be safe to say that it is due to Dr. D. D. Smith of Philadelphia that today hundreds of dentists are practicing along these lines.

Decay of the teeth is caused by the fermentative action of bacteria, producing an acid which causes a destruction of the inorganic constituents of the teeth. It is necessary for the production of caries or decay of the teeth for the bacteria of decay to become fixed npon or attached to the surface of the teeth in order to carry on their destructive work. This necessary fixation of the bacteria of teeth decay is accomplished by the property which they possess of surrounding themselves with an adhesive substance which glues them to the enamel in protected places, forming what is known as gelatinous placques.

Preventive dentistry is the practice of placing the mouth and teeth in such a condition as to make decay almost impossible. This is accomplished by the removal of every foreign particle from the mouth. The teeth are cleaned, filled and polished not only above the gum, but below as well, wherever a pocket may exist, and are left in glistening condition, which makes lodgment of food, tartar and germs impossible. Particular attention is paid to the surfaces and edges of old fillings that they may offer no lodgment for foreign substances.

To be successful, prophylactic treatment entails frequent visits to the dentist; this is one of the essential features. To be ideal, the treatment should start with the eruption of the deciduous teeth.

Great as the factor of cleanliness is, we cannot overlook the fact that caries is seen frequently in mouths in which the strictest prophylaxis is maintained; while the converse is true, namely, that many filthy mouths are perfectly immune to caries. Cleanliness is, therefore, a factor in the determination of the condition of immunity and susceptibility, and in some cases is the controlling factor, while in many other instances, but one of several influences which, by their combined effects produce a condition which is favorable or unfavorable to caries.

We know, however, that by proper mouth prophylaxis, by the best modern reparative measures, and by the use of food requiring a great deal of mastication, we may resist the action of caries in the average individual. It is said that the natives of countries where hard food is eaten have broad, strong jaws and sound teeth. Thus by mechanical measures we produce a partial or complete immunity, in spite of unfavorable conditions which may exist in the mouth.

Until a better method be found, we must continue to fight caries by the best prophylactic and reparative measures which we can command. By keeping the mouth in a healthy condition and the teeth free from tartar, smoothing the edges of old fillings, and replacing gold caps and bands that irritate the gum, we can, in the vast majority of cases, prevent the so-called pyorrhea alveolaris, which is a molecular disintegration of the investing structures of the teeth, sometimes, but not always, accompanied by the formation of pus.

The physician will always be the adviser of the public in things pertaining to the health, and when he awakens to the fact that the teeth are more essential to health and happiness than has been supposed, his natural position as mentor of the public health will cause him to educate the people as to the insiduous nature of oral sepsis in the same manner that he has taught them the dangers of drinking from a public cup.

The human mouth is a habitat and breeding ground of many bacteria which are the cause of definite pathological conditions. They have here all of the elements necessary for their existence, food, moisture and warmth. They are found between the teeth, under the gums surrounding each tooth, in cavities of carious teeth, under ill-fitting crowns, bridges and plates, defective fillings, pyorrhea alveolaris pockets, tonsils and abraded pathological mucous membranes. Among the germs that frequent septic mouths are the following: bacillus tuberculosis, bacillus influenza, bacterium coli communi, pneumococcus Freelander, pseudo-diphtheretic bacillus, staphylococcus albus, staphylococcus citreus, streptococcus, Vincent's bacteria, and others.

From the mouth may be distributed the pathological factors named to the rest of the body by continuity of surface, absorption through tonsils, pathological surfaces and concealed pus foci by blood and lymph streams, inhalation into the bronchi and lungs and ingested into the stomach and intestines, producing autointoxication. The passage of the discharges of a septic oral cavity into the stomach, along with ill-masticated food, due to defective dental organs, leads to disturbances of function. The proper function of that organ is rendered inefficient, because the contents of such a stomach undergo fermentation of putrefaction, instituted by the micro-organisms that have come from the septic mouths. The irritating products of incomplete digestion are not in a proper state to be turned into blood. This may give rise to almost every disturbance.

During the resting period, when hydrochloric acid is not being secreted, the discharge and contents of septic mouths passes into the stomach, producing a streptococcus and staphylococcus gastric infection. The contents of such a stomach pass into the small intestine and repeat the process there with the initiation of enteritis or septic enteritis and affect the gall ducts, kidneys, spleen and pancreas. That impaction and constipation contribute their share in the production of fecal toxemia from this retention of resi-

due in the large intestine may well be appreciated when we remember that one-third of the total weight of the solids of normal feces may consist of bacteria.

It may well be appreciated that the number of fecal bacteria are increased under the condition of oral sepsis due to faulty mastication by decayed, deformed and deficient teeth.

The long continued absorption of perverted digestion, decomposition and putrefaction, along with bacteria of low toxicity, produces and contributes to headache, malaise, lassitude, sciatica, epilepsy, eclampsia, dermatitis, various forms of nervous diseases, chlorosis, anemia, nephritis, arteriosclerosis and rheumatic fever.

The important result of preventing such absorption is shown in the following case:—

CASE 1. A dentist was called to do what was absolutely necessary to relieve the discomfort of a patient who had been confined to her bed with intestinal infection. While placing two cement fillings the operator noticed a congested condition of the mucous membrane, and on pressure pus was seen to exude from the gingival margin. After three or four days' treatment and the use of a mouth wash every hour or so, the patient was able to leave her bed and take her meals with the family. Her improvement from that time was rapid.

Dr. William Hunter of London, in October, 1910, published in the *Lancet* of Jan. 14, 1911, the following: "My clinical experience satisfies me that if oral and naso-laryngeal sepsis could be successively excluded, the other channels by which 'medical sepsis' gains entrance into the body might almost be ignored. Sepsis as an important and prevalent cause of disease in medicine would almost cease to exist, instead of being, as in my judgment it is at the present time, a more important and prevalent cause of disease in the domain of medicine than it is in that of surgery."

Dr. Evans, Health Commissioner of Chicago, says, "For a long time, in watching cases of scarlet fever, in order that the community might be protected, we watched the skin. We have learned now that it is more essential to investigate the condition of the mouth, the nose and throat, and the teeth." Then again he says, "We have learned that there is not so much danger of diphtheria from a child that is actively sick as there is from a child who has not been sick at all, but who harbors diphtheria bacilli. These individuals are capable of inducing diphtheria in others, because the bacteria may remain latent in the nose, throat, tonsils, and in the cavities of the teeth, a fact which is not thoroughly understood by the practitioners of medicine.

In 1904 Dr. J. F. Hoverstadt of Boston read a paper before the Massachusetts Dental Society in which he said that he had given his services for eight years to the children of the West Roxbury Home. There were 53 to 60 children, ranging from two to fourteen years of age. When he began to give his services the teeth of the children were in a deplorable condition. Diphtheria and many other diseases were prevalent.

Here is a letter written by the superintendent.

West Roxbury, April 3, 1904.

DEAR DOCTOR:—If the inclosed record is of any use to you, I shall be pleased at any time to vouch for the correctness of the following statement or record:—

Since the time that you have taken care of the children's teeth in our institution, the health record has been remarkably improved. There has been no more typhoid or diphtheria. For this we have to thank, in the first place, God, but it is also due to the scientific and conscientious work that you have done for the children. The doctors' and drug-store expenses for the past nine years have been as follows:

1895.....	$89.97	1900.....	$38.29
1896.....	70.94	1901.....	2.88
1897.....	49.78	1902.....	3.80
1898.....	45.61	1903.....	8.86
1899.....	303.39		

The reason that the expenses were so much higher in 1899 than in the preceding years, was due to the fact that two newly arrived children had brought the measles and whooping-cough into the institution, and eighteen children were affected by same; the sum includes pay for nurse. The great decrease in physicians' and drug expenses is most markedly shown by the last three years, as the same has been reduced from $89.97 in 1895 to $2.88 in 1901, $3.80 in 1902, and $8.86 in 1903.

(Signed) REV. F. WILHELM, *Superintendent.*

I spoke with the doctor a week or two ago and he told me that there had been no case of infectious disease at the home since he wrote the paper.

SCHOOL INSPECTION AND DENTAL CARIES.*

BY W. J. GALLIVAN, M.D., BOSTON.

Chief Division Child Hygiene, Boston Board of Health.

PHYSICAL examination of school children in Boston for the year 1911-1912 reveals the fact that 51,340 pupils, or 43.3% of the school population, were recorded as having defective teeth. This report is made as a part of a complete physical examination and, of course, indicates only gross and glaring defects. No one doubts that if such an examination were made by dentists instead of physicians, the percentage of defective teeth would be considerably increased.

Similar examination made in the City of New York shows 58.1% of the school population afflicted with defective teeth. In Chicago, 40% are so recorded. In Philadelphia, 50%. In short, a compilation of statistics made by Dr. Thomas Wood, Professor of Physical Education in Columbia University, places the school population of this country at about 20,000,000, and of

* Read before Norfolk District Medical Society, October 29, 1912.

this number, 10,000,000, or 50%, have defective teeth.

From such data, we can reasonably infer that defective teeth in school children is a condition not peculiar to Boston alone, but is widespread throughout the whole country.

A further investigation was made of the reports from the various sections of Boston, comparing conditions found in children coming from the best residential districts with those coming from less favored sections, with reference to dental caries, with the following result:

City Proper	52%
Back Bay,	45%
South End	67%
West End	54%
North End	30%
Jamaica Plain	53%
Roxbury	41%
West Roxbury	40%
Dorchester	32%
Brighton	61%
Hyde Park	50%
South Boston	42%
East Boston	20%
Charlestown	62%

From the foregoing table we can also reasonably infer that dental caries is no respecter of persons, but attacks high and low with equal impunity.

In every instance, notice of the defective condition found was sent to the parent or guardian, informing him of the condition and recommending that treatment be sought, either at the hands of the family dentist or at some dental clinic.

Physical examinations for the year 1912-1913 are now under way and upon their completion a complete list of the correction of defects can be furnished. Anticipating that such information in relation to dental caries might be sought at this meeting, a comparison of this year's examination with that of last year was made. We were able to make comparisons in 2,000 cases. Statistics dealing with such small numbers may not be of much value, but it is encouraging to note that on the basis of 2,000 children reexamined, 70% were recorded without defects, as compared with 29% recorded without defects last year. Following down the list of corrections, we find that

Defective teeth corrected	40%
Hypertrophied tonsils	42%
Defective nasal breathing	54%
Cervical Glands	50%

When we consider that dental charity in Boston, at present, is wholly inadequate compared with the opportunities for medical charity and when we consider that inquiry among dentists furnishes the information that Saturday is the only day on which they are able to make appointments with children, through the child's fear of marring school attendance record, we feel that this result is a tribute to parents who have demonstrated that they are able and willing to care for their children, once their attention is called to conditions which require treatment.

This widespread prevalency of dental caries among the children of all classes does not indicate any lack of parental instinct in caring for their young. It is simply due to ignorance of medical, dental and hygienic affairs about which no effort was made until the present time to provide information.

Sound teeth appeal to the average layman for their cosmetic value. That dental caries may be the harbor for all kinds of bacteria that some day may lay him low, probably has never caused him a thought. And yet, for some time, physicians have known that in the etiology of diphtheria, scarlet fever, pneumonia, tuberculosis, and other respiratory infections, dental caries play an important part. The educational value of this work then in calling attention to the train of evils which follow dental caries will be seen and felt in the prophylactic measures which will be applied to future generations.

Meanwhile, we are confronted with the problem of caring for defective teeth, as well as for other defects noted in the process of medical inspection of schools. As usual, when announcements of this nature are made extreme views are spread broadcast, perhaps from a desire to atone for a past of indifference and inactivity. In this category may be placed the suggestion to establish dental clinics in the school building. And if this position is tenable, clinics for the correction of other defects of equal importance as dental caries should follow. This line of suggestion followed to its logical conclusion leads to possibilities we dare not contemplate. From the earliest times, school has never been too attractive to the normal boy, and until it can be proven that parents have lost all sense of responsibility in caring for their offspring, the duty of the school physicians had better be confined to its present limits, *i.e.*, to examine, refer and report.

THE PURPOSE OF THE FORSYTH DENTAL INFIRMARY.

BY TIMOTHY LEARY, M.D., BOSTON.

The Forsyth Dental Infirmary for Children is a charity incorporated under the laws of Massachusetts whose purpose is to furnish to the worthy children of Greater Boston the dental care which they require.

Dr. William J. Gallivan in his report for the Division of Child Hygiene of the Boston Board of Health for 1911-1912 classifies the conditions found as a result of the physical examination of the Boston school children as follows:

Number pupils examined		118,781
Total number of pupils without defects		40,850
Total number of pupils with defects		77,931
Mental deficiency	501	
Defective nasal breathing	9,093	
Hypertrophied tonsils	25,121	
Defective teeth	51,340	
Defective palate	371	
Cervical glands	13,711	
	100,236	
Pulmonary Disease:		
Pulmonary tuberculosis	133	
Acute bronchitis	1,169	
Asthma	63	
Pleurisy	42	
Miscellaneous	987	
Cardiac disease	3,091	
Nervous disease	505	
Orthopedic defects:		
Tuberculosis	693	
Non-Tuberculosis	1,881	
Skin	5,245	
Rickets	1,019	
Malnutrition	3,891	
Total	119,456	

It will be observed that defects were found in 68 per cent. of the children examined. The defects found total 119,456, and of these the defects originating about the mouth and included under the headings: Defective Nasal Breathing, Hypertrophied Tonsils, Defective Teeth, Defective Palate, and Cervical Glands, total 100,236, or practically 84 per cent. of all defects found.

Most of the defective nasal breathing is due to adenoids (Dr. Gallivan's opinion), and recent work indicates that enlarged cervical glands are not, as has been thought, primarily tubercular, but are related to sources of infection in the mouth and subside promptly in most cases on cleaning up the mouth lesions.

These statistics do not include defects in the alignment of teeth with the exception of the most extreme deformities.

This then is the problem which the school children of Boston proper present at the present day from the standpoint of oral hygiene. The school population of suburbs of Boston within easy access of the city proper numbers about 110,000, and it is a reasonable presumption that the percentage of defectives among these children should correspond to the findings in the Boston schools.

The solution of the dental portion of this problem lies in bringing the children under the care of experienced dentists. This might be done in one of two ways—(*a*) By causing the dentist to visit the children, or (*b*) By bringing the children to the dentist. The Trustees of the Forsyth Dental Infirmary for Children have given deep thought to this problem and have concluded that from all standpoints it was wiser and on the whole more practicable to bring the children to the dentist. This is the era of effort toward efficiency of human labor. The value of the time of a child is the cost of its education to the city which is estimated at 3 cents per hour. The element of time apparently lost to education can be ignored since it is being recognized that the physical well-being of the child is essential if it is to obtain full value from the instruction offered. Time apparently lost in obtaining dental care is, therefore, repaid many fold in the ultimate outcome.

The time of the dentist on the other hand can be estimated as worth from $3.00 per hour upward. A fair estimate would fix it at about $5.00 per hour. Unlike the physician who can make use of any part of the twenty-four hours in adding to his income, the dentist is limited to the daylight hours. With artificial light it is possible to lengthen the working day but at an expense to eyes and quality of work which leads the average dentist to confine his professional labors to an eight-hour day.

The physical effort of standing by an operating chair and carrying out manipulations which require constant muscular activity also limits the possibility of greatly extending the working period.

With units of so greatly different value the efficiency expert quickly reaches the conclusion that the units whose time is of less value (*i.e.* the school children) should be brought in touch with the units of greater value (*i.e.* the dentist). The cost of tranporting the children to a central situation (10 cents for carfare) and the cost of their oversight (time of school nurses) does not appreciably modify the relative value of the units.

Unlike the physician the dentist requires a complex equipment in order that he may work. The multiplication of dental outfits in many situations necessitates the duplication of many parts of the plant outside of the chair and instruments.

Dentistry is surgery and no form of professional activity offers more opportunities for the transmission of disease from one individual to another so that rigid asepsis is an essential. A central plant where the sterilization of everything which enters the mouth is under the control of an individual whose sole business this is, surely furnishes a more complete check on cross infection than the divided effort in small plants.

THE VOLUNTEER DENTIST.

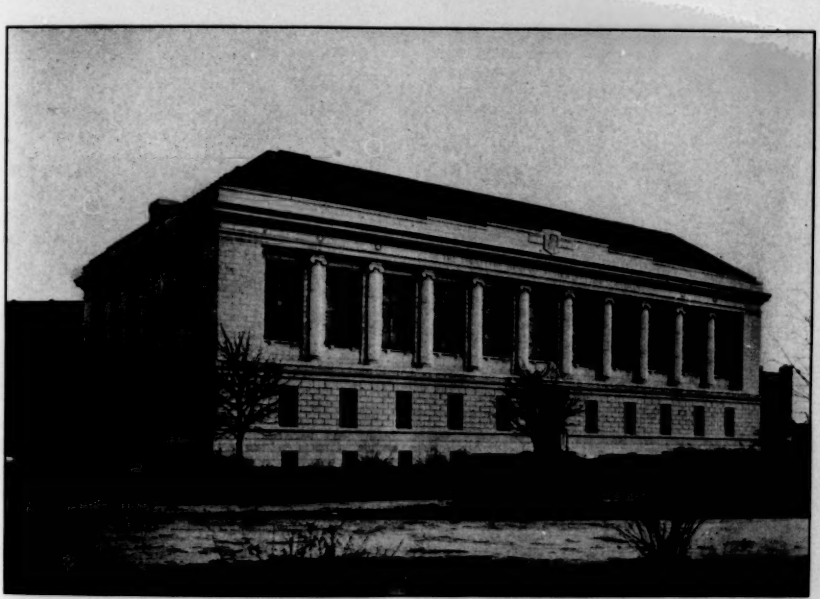
The physician who gives two or three hours per day to a public charity feels the income loss slightly if at all since he has a large part of the day to recoup the lost time. The busy dentist who gives of his daylight hours to a charity must take from this a definite loss of income which cannot be made up. Those who have had practical experience in the establishment and oversight of volunteer dental clinics can best appreciate the difficulty of obtaining volunteers among experienced men.

Success in dentistry is associated with more and more exacting demands on the time of the dentist who increases his income not by increasing the length of his working day, but by de-

manding a larger sum per hour for his services.

Success in medicine is often associated with less exacting demands on the time of the physician as a practice is converted into a consulting practice.

The eminent physician who gives his time to a public charity is required to do a minimal amount of routine work and is rewarded by the attempt been made to care for the dental requirements of the children of a great city. Small clinics have been established in many cities, but nothing on a similar scale is in existence in the world. Many new problems have had to be met since the character of the institution has necessitated the creation of agencies hitherto unscalled for. The Board of Trustees



FORSYTH DENTAL INFIRMARY FOR CHILDREN

is under construction on the Fenway. It is intended as a memorial to the dead Forsyth brothers and is fittingly monumental in character. When completed it is the consensus of opinion that it will be one of the most ornamental structures in the city. The trustees for the past two years have bent all of their efforts to make its appointments so complete that its equipment will be adequate for the Herculean task which this new work will entail.

Nowhere in the world up to this time has an institution a clearing house for the newer things in dentistry. Here will be concentrated an enormous amount of clinical material. It is our purpose to invite experts who are dealing with dental problems in any part of the world to come to Boston and report the results of their experience. Clinics will be held by experts in the various branches of dentistry and the busy local practitioner will be kept in touch with dental progress. In other words he will be given the opportunity which the general practitioner in

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dentist to visit the children, or (*b*) By bringing the children to the dentist. The Trustees of the Forsyth Dental Infirmary for Children have given deep thought to this problem and have concluded that from all standpoints it was wiser and on the whole more practicable to bring the children to the dentist. This is the era of effort toward efficiency of human labor. The value of the time of a child is the cost of its education to the city which is estimated at 3 cents per hour. The element of time apparently lost to who gives of his daylight hours to a charity must take from this a definite loss of income which cannot be made up. Those who have had practical experience in the establishment and oversight of volunteer dental clinics can best appreciate the difficulty of obtaining volunteers among experienced men.

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Success in medicine is often associated with less exacting demands on the time of the physician as a practice is converted into a consulting practice.

The eminent physician who gives his time to a public charity is required to do a minimal amount of routine work and is rewarded by the legitimate advertising arising from his connection with a hospital and also by the opportunity to add to his experience by the concentration of a large amount of clinical material in the institution. This material also makes it possible for him to add to his reputation by teaching. In other words, public service attracts the most eminent members of the medical profession by the opportunities which it creates.

It is our belief that public dental service should in a similar way offer opportunities which will attract to it the most eminent members of the dental profession as well as the rank and file.

The Forsyth Dental Infirmary for Children was founded as a memorial to James Bennett Forsyth and George Henry Forsyth. Its first group of trustees was made up of leading educators and professional men together with three representatives of the dental profession. The most active member of this group was Dr. Edward W. Branigan who had given the greater part of his life to dental education and notably to the problem of the care of children's teeth. The death of Dr. Branigan and the resignation of other members led to a reorganization of the board which as now constituted is made up of four business men, two physicians, and four dentists—one representing the Baltimore dental schools, one representing the Philadelphia dental schools, and one representing each of the local dental schools, under the presidency of Thomas Alexander Forsyth, one of the donors.

This institution is dedicated to the children. It is the purpose of the foundation to care for mouth conditions in worthy children under the age of sixteen years. Its functions will include not only the care of the teeth but also related oral diseases including defective palates, adenoids, etc. Much of the work it will be called upon to do in its early years will deal with the curing of already established processes. When established processes are under control it is expected that it will have to do in great part with the prevention of defects by oral prophylaxis. The building which will house the foundation is under construction on the Fenway. It is intended as a memorial to the dead Forsyth brothers and is fittingly monumental in character. When completed it is the consensus of opinion that it will be one of the most ornamental structures in the city. The trustees for the past two years have bent all of their efforts to make its appointments so complete that its equipment will be adequate for the Herculean task which this new work will entail.

Nowhere in the world up to this time has an attempt been made to care for the dental requirements of the children of a great city. Small clinics have been established in many cities, but nothing on a similar scale is in existence in the world. Many new problems have had to be met since the character of the institution has necessitated the creation of agencies hitherto uncalled for. The Board of Trustees has met many of the old problems as though they were new ones, and the equipment of the institution will be marked by many changes from standard devices. The main problem has been the question of supplying expert dentists for carrying on the details of the work. This problem we believe we have solved by adopting the methods demonstrated to be successful in public medical institutions. The foundation of successful work in hospitals dealing with acute conditions is the house officer. He is a recent graduate in medicine who gladly gives his time to the institution in return for the experience gained. The clinics of the dental schools try to supply a similar demand in dentistry but not always adequately. Post-graduate training in dentistry is rarely obtained except through opportunity to assist dentists in their offices. The average dental student goes directly from the dental school into the practice of his profession.

The generous endowment of the Forsyth Dental Infirmary outside of the cost of the building will permit of the employment of recent graduates in dentistry at a small salary. On completion of a satisfactory service of one or two years each of these members of the permanent staff will be given a diploma certifying his service. It is believed that this service with its opportunities for wide experience will attract picked men from the dental graduates of the whole country and further will train a group of experts on oral prophylaxis whose influence on the profession will be widespread. The number of dentists whose whole time can be paid for in this will be necessarily limited. Among recent graduates who are practising in this city are many, however, whose time is not wholly occupied by their practices and who would be willing to give half time to the institution for a small remuneration. They, with the whole-time men, will constitute the permanent staff.

A volunteer staff will be made up of dentists who are willing to give one-half day per week or per two weeks or per month to charity. In order to draw to this service the eminent members of the local profession it is intended to make the institution a clearing house for the newer things in dentistry. Here will be concentrated an enormous amount of clinical material. It is our purpose to invite experts who are dealing with dental problems in any part of the world to come to Boston and report the results of their experience. Clinics will be held by experts in the various branches of dentistry and the busy local practitioner will be kept in touch with dental progress. In other words he will be given the opportunity which the general practitioner in

medicine seeks when he takes post-graduate instruction or which the visiting physician to a hospital obtains as the result of his connection with the institution. It is recognized in medicine that those public hospitals do the best work for their patients in which clinical teaching is practiced. The members of the visiting staff of such an institution are compelled to keep in touch with modern progress or be subjected to the criticism of students. Their patients profit by the mental acuteness which such a training develops. The value of such continuous instruction to the dental profession of Boston cannot be overestimated. Its value in turn to the children who come under their care should be a tangible asset to the community.

Men who would be unwilling to devote time to the deadly routine of a one or two-chair clinic should find in this central clinic with its perfect facilities and large clientele so potent an attraction that the difficulties which the small clinics are suffering in obtaining volunteers should not be met.

The research department of the institution is supported by a fund set aside from the rest of the endowment and should add materially to the World's knowledge of dental conditions.

From the practical standpoint the following figures may of value. The institution will start with an equipment of 64 chairs which may be increased to 106 as needs demand. It is estimated that each chair will care for 12 patients in an eight-hour day. This allows for more than a single filling if necessary. Seven hundred and sixty-eight patients per day can be treated with the initial equipment according to this schedule. With 300 working days per year 230,400 operations can be carried out. This will allow for three treatments annually of 76,800 children. With full equipment 381,600 operations can be carried out or three treatments annually of 127,200 children. In considering these figures it should be remembered that a large percentage of school children will be cared for, as now in dental offices, at the expense of their parents.

It would seem that schemes for school or local dental clinics at the expense of the taxpayers of Boston should be held in abeyance until this splendid charity dedicated to the children has had an opportunity to demonstrate whether it will be adequate to cope with the dental needs of the school children or not.

This foundation seeks the good will of the sister professions, medicine and dentistry, and looks for their co-operation in its effort to uplift the physical standard of humanity.

A WORD ON THE SCIENTIFIC, ECONOMIC, AND SOCIAL PROGRAM OF THE FORSYTH DENTAL INFIRMARY.

BY HAROLD DE WITT CROSS, D.M.D.

DR. LEARY has told you how the Forsyth Dental Infirmary for Children came into existence, and I will tell you a little about the building and its work. It is very appropriate that this subject should be discussed before a medical society because the medical and the dental men are equally interested in it. The subject has incited much interest not only in this vicinity, but in all portions of this country and all over the world. There are many problems to meet in undertaking the establishment of an institution of this kind, problems in connection with the building, its equipment, and the selection and organization of the staff.

This is the day of endowments. Schools, hospitals and clinics are being endowed, and established in many places; but there is none which compares with the Forsyth Infirmary, in the magnitude of its undertaking, and it is *all* for the children. The exterior of the building is monumental, because it is to serve as a memorial as well as an infirmary. The interior will be constructed with regard to the most improved style of hospital finish. The chairs are to be made without corners and with a smooth metalic surface which can be easily cleaned and sterilized. The instruments arranged in sets, suitable for all ordinary operations, will be placed in suitable metal trays, which, together with the enclosed instruments will be cleaned and sterilized, and a complete, sterile set provided to be used with each patient.

The lavatories are to be of the hospital operating-room type, somewhat modified, and will be provided with an aseptic soap server of new design. The improvements which have been made in the lavatories will no doubt establish a new standard for aseptic fixtures.

The principal rooms of the building are as follows: The infirmary, the main room of the building, is a large, airy, light room and will be equipped with modern dental apparatus for all operations, extracting, orthodontia, surgical and research rooms, a children's waiting room, a permanent and a visiting staff's, a nurses' and a students' room, and a large lecture hall.

The entire staff is to be composed of a consulting, visiting and a permanent force. The visiting staff's services will be gratuitous, but the permanent staff will receive a moderate compensation, and those serving on it will devote their entire time to the work. It is quite possible that a competitive examination may be necessary to obtain a place on the staff. These positions will be filled by recently graduated men, who will find the experience invaluable, and the training will in many ways be the equivalent of a post-graduate course.

The research laboratory will be completely equipped with suitable apparatus, and in it will be an experienced person devoting his entire time to research work. It is to be hoped that many problems, now unknown, will be solved in connection with the diseases of the oral cavity.

The museum will be a repository of pathological specimens and will serve as a centre for the dissemination of knowledge of oral hygiene.

The lecture hall will be used for popular lecture on all subjects of hygiene and oral prophylaxis.

The particular work of the infirmary will be, of course, dental, and will consist of the filling, cleaning, extracting, and straightening of the teeth, together with the necessary operations on tonsils, adenoids, harelip and cleft palate. The two ward rooms and the adjoining diet-kitchen make ample provision for surgical cases to be given proper care.

In the beginning it will be necessary to do considerable extracting in order to clean up the diseased teeth and mouths; but later it is hoped that, due to the care which will be given the children's teeth, the improved condition will be such that more and more time can be given to prophylactic work, gradually increasing such work as the health of the oral cavity improves and as the child feels the importance of the care of his teeth. In this way teaching the child the importance of prophylaxis creates the way to continue this work in adult life, and may assist in creating the need of specialists in this line of work.

It will be possible to do complete work in this infirmary; complete in the sense that a few fillings will not be made in the front teeth, while decayed and loosened roots are allowed to remain in the less accessable parts of the mouth. This is frequently done in many clinics on account of the inability of the little patient to pay for the material or from indifference on the operator's part. *All necessary* work will be done for each patient, continuing the appointments and following up the child, through the school nurse or otherwise until the entire mouth is clean and healthy, including the nose and throat. This is bound to give better results than the desultory methods which are often the best that can be offered to the needy child.

And while the expense attendant upon this complete work on the teeth and mouths of the children will be such as can be easily met by the poorest, coming here for treatment, it will be necessary to so control the work that undue advantage will not be taken by those better able to pay for the services. Through a social secretary it will be possible to get in touch with the school nurses and charitable workers in order to know who the deserving ones are.

Above all it is our duty to see that a wise expenditure of the magnificent endowment of the Forsyth Dental Infirmary for Children accomplishes that which its donor intended, namely, to give the children of this vicinity clean and healthy mouths.

Through the courtesy of the Dental Hygiene Council, I am able to show wax models of children's mouths, made from life, which show more eloquently than any words of mine, just what the Forsyth Dental Infirmary for Children intends to do. It will devote its money and the energies of the trustees to change these mouths from a diseased, germ-feeding place to a healthy and beautiful masticating apparatus.

Clinical Department.

ABNORMAL PERITONEAL SACCULATION OF THE OVARIES CAUSING ACUTE PAIN, WITH A REPORT OF THREE CASES.

BY EDWARD REYNOLDS, M.D., BOSTON.

CASE 1. Private Records, Series B, No. 3351. A neurasthenic and somewhat ill developed girl of 22 years. The little finger of the right hand was contracted by a congenital web. Complaining of sharp pain, varied by acute exacerbations, in the lower abdomen and back, mostly right-sided. This pain was of about a year's duration and the acute attacks were accompanied by frontal and occipital headaches, with hot flushes, and sweating of the right arm only. During these attacks she was somewhat hysterical. On examination there was a small uterus in retroversion, with some tenderness over the right broad ligament, but nothing else abnormal was felt. After two months' observation, and failure to obtain relief by minor means, the pain was plainly becoming more severe, and operation was advised. On Jan. 15, 1911, the abdomen was opened by a small exploratory incision and the movable fundus drawn up. The left ovary was at once seen to be moderately enlarged and cystic, but in normal peritoneal relations. The right tube was visible throughout the greater part of its length, but at its distal extremity appeared to fuse with the broad ligament. On more careful inspection it proved to disappear into a slit in the broad ligament about three-quarters of an inch long and with edges so sharply defined as to be clearly congenital. Upon traction on the tube the ovary was visible lying within a peritoneal pocket, the mouth of which was too small to permit its withdrawal. The utero-ovarian ligament was perceptible at the inner angle of the slit. This was seized with forceps, and after some manipulation it proved possible to so rotate the ovary within the pocket as to bring it to the opening by one pole, in which position it was possible to withdraw it. It was moderately enlarged by several small follicular cysts and two good sized corpora lutea. After resection of both ovaries, closure of the sacculus, a suspension of the uterus, and the removal of the appendix the abdomen was closed. The patient made a good recovery and the attacks of ovarian pain ceased.

CASE 2. Private Records, Series B, 3496. An apparently well developed, though somewhat neurasthenic girl, 25 years old. Complaining of pain in lower abdomen, more especially on left, for seven to eight years, increasing and continuous for last three to four months, and has had one severe "spell" of this pain. Her physician, Dr. J. P. Carroll of Woburn, was clear that her pain, as he had seen it, was at times so severe that something must be done about it. On examination right ovary, the size of a large English walnut, believed to account for the pain. Operation recommended. Abdomen opened April 3, 1912. Left ovary normal. Right ovary much enlarged, lying caught in shallow pocket on

the posterior side of the broad ligament. Traction on the utero-ovarian ligament resulted in release of the ovary from this pouch, with a very apparent slip as the ovary was released from the pouch. Ovary enlarged by one large, definitely cystic corpus luteum, cyst, having a well formed capsule. Resection of the ovary, removal of appendix. Convalescence normal, and entire relief of pain.

This patient etherized badly and the results of the Trendelenberg posture were unsatisfactory. The intestines were in the way of the operation throughout, and the ocular inspections obtained were brief, intermittent, and far from satisfactory. The opening of the pouch was, however, seen, and its relations were studied with some care by the touch. At the conclusion of the operation the information obtained by both methods were embodied in a diagrammatic sketch (Fig. 1).

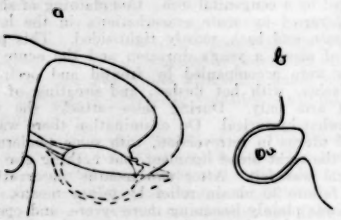


FIG. I.
(a) Diagrammatic sketch of peritoneal relations of ovary in Case 2.
(b) Diagram of probable cross section.

CASE 3. Private Records, Series B. 3307. Patient of Dr. F. B. Brown of Dorchester. A very small and sharply neurasthenic girl of twenty-one, whose appearance was that of a girl several years younger. Complaining of short but sharp pains in right lower quadrant, coming in attacks lasting from fifteen minutes to an hour, three or four times a year for the last seven or eight years, and lately increasing in frequency and severity, also of late of a sense of weight in the pelvis. On examination genital organs double from hymen up, both cervices very small with pinhole openings, the uteri small and somewhat retroverted. April 17, 1912, septum between vaginae divided with scissors from hymen up to cervices. On careful examination it was now evident that the inner walls of the cervices were in coalescense, though with distinct canals. The uteri above were separate. The vagina was packed and the abdomen opened. On inspection each uterus looked perhaps a little larger than one-half of a normal uterus. The right ovary was contained in a pocket closely similar to that of

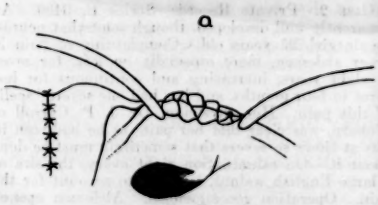


FIG. II.
(a) Sketch of Case 3 with resected ovary elevated by forceps and mouth of sacculus consequently stretched open.

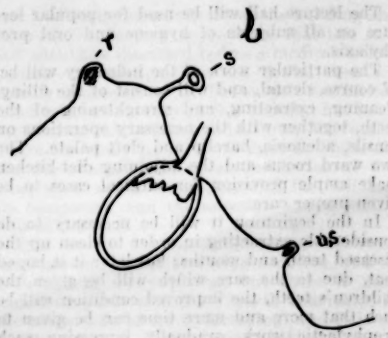


FIG. III
Diagrammatic section through broad ligament of Case 3, parallel to mesial section and cutting sacculus, (r) round ligament, (s) salpinx, (u.s.) utero-sacral.

Case 1. This was carefully studied and a sketch drawing was made immediately after the conclusion of the operation. The view of the broad ligament obtained in this case was excellent and continous, and had it been feasible to have a drawing made during the progress of the operation it is probable that other details than those given might have been included, but I am very confident that all which are given are accurate. The ovary was somewhat enlarged and could be withdrawn from the pocket when only one pole was brought to the opening by traction on the utero-ovarian ligament. The other ovary was normal. The right ovary was resected, and the mouth of the sacculus closed by sutures.

The inner aspects of the two uteri were then laid open by longitudinal cuts. After careful exploration with a sound, blunt-pointed scissors were passed downward, one blade in either cervical cavity, and the cervices were laid together by closing the scissors. The posterior edges of the incisions in the uteri were then sutured together, each to the other, and the anterior edges each to the other, the result being a uterus of fully normal size and most surprisingly normal appearance. During convalescence there was some attempt at re-formation of the cervical septum, which was, however, easily broken up with dilators. At the present date the only abnormality perceptible consists of slight evidences of the vaginal septum in the fornices and about the cervix. All ovarian pain has ceased.

These three cases were so closely similar in the symptoms provoked and the anatomical conditions found, as to form a distinct pathological entity which seems worth consideration, in spite of its probable rarity. It is, so far as I have been able to find, hitherto undescribed. It possesses scientific, and some clinical interest.

From the scientific standpoint, the cases seemed worthy of being put on record in a paper which is to be published in the *Bulletin of the Boston Society of Natural History*, and a few words from this standpoint may be of interest here.

All developmental anomalies have an explanation, but the meaning of this anomaly was, at first, to me incomprehensible. It was solved only by recourse to the facts of comparative anatomy. Every one knows that the embryological record furnishes a skeleton picture of the course of evolution from the primitive organisms to man, but every one does not realize how sketchy the embryological record is. It furnishes at the most only a few traces of each of the great stages in our descent. Comparatively few physicians are practically familiar with the fact that this outline sketch is to a great degree filled in and amplified by the evidence furnished us by the study of developmental anomalies, many of which reflect minute stages of our ancestry and throw light on our relationship to the other vertebrates. These three cases furnish a very typical instance of this method of amplification of the records of the past.

If we study the peritoneal relations of the ovaries among the other mammalia we find that they differ widely, and exhibit almost all gradations between two extremes, of which one is represented by the situation of the ovary in the human female, and the other by the anatomy of the female mouse. Zoologists describe the human ovary as attached to the posterior surface of the broad ligament by one border, from which it hangs dependent, in contact with a shallow depression in the broad ligament, the lower edge of which is formed by the utero-sacral ligament, though my own recent studies throw some doubt on the analogy between this depression and those described in the other mammalia, a point which is fully elaborated in the other paper referred to. On the other hand, in the mouse the ovary lies in a closed sac of peritoneum, the small orifice of which is not only filled completely by the Fallopian tube as it passes through it, but the peritoneal covering of its edges has actually become incorporated with the peritoneal covering of the tube; and many intermediate stages of sacculation are described in other genera and species of the mammalia.

The comparative anatomy of the genitalia is peculiar in the distribution of its variations, and for this reason forms a very complicated study, which, indeed, in its evolutionary bearings, appears from the light of our present knowledge to be in many respects contradictory. It, moreover, involves one of the vexed questions in biology, one which can be settled only by the accumulation of many isolated observations, and probably only in the distant future. Only its most evident features are then appropriate for mention here.

In the most primitive forms of the living mammalia, *i.e.* the monotremata and marsupials, the ovaries lie in shallow peritoneal depressions, not unlike what is zoologically described as the normal anatomy of the human female; in the insectivora, a family which is in most of their anatomy but little higher than the marsupials, the sacculation of the ovary within a specialized cavity is nearly complete; and it is, therefore, a most curious fact that among the higher mammals marked variations in the degree of development in this particular occur among individual species in almost all genera, rather than along regular lines of descent. Thus, for instance, while in the rhinoceros, tapir, and most perissodactyla, the ovaries lie in shallow depressions; in their near relation, the mare, they are concealed in nearly complete saccula. Again, among the horned ruminants every variety is found, only the bison having deep and comparatively enclosed saccula. Among the carnivora, only the common bitch has complete saccula, and, not to multiply instances, the same conditions obtain among the primates. In several of the American monkeys the ovaries are suspended in a pouch which, though not fully developed, is so formed as closely to suggest the anatomy of the insectivora with their almost complete sacculation; but, on the other hand, in the higher apes and in woman the depression is at most so shallow as to be normally almost unnoticeable; yet in two of the three cases reported the anatomy was that of practically complete sacculation, and in the third case (Case 2) was in an intermediate stage which is well known among the quadrupeds.

In so far as we are justified in drawing any conclusions from this wide variation of conditions throughout the mammalia, it would appear probable that an early ancestor, later than the marsupials, possessed completely sacculated ovaries, and that this peculiarity has been lost by most of its descendants, but has persisted in typical form among others.

The cases reported are then of biological interest as instances of the re-appearance in isolated individuals of a type of anatomy which is of remote inheritance and has been lost by the species.

From a clinical point of view the condition would be of marked interest if it were not for its probable rarity. When a single observer sees, within a few months, three cases of a hitherto undescribed condition, the first impression made upon his mind is naturally that it is probable that a not uncommon condition has been overlooked, but in the more marked instances this anatomy is so distinctive that if it were not really rare it would probably have become long ago familiar to surgeons* and to pathologists. It is to be borne in mind, however, that there is no reason why sacculation of the ovaries should excite symptoms in the absence of ovarian enlargement, and it is, of course, probable that numerous other instances of this anomaly have occurred in individuals who reached neither the operative nor post-mortem table. In spite of its rarity the symptom complex which characterizes it is, however, probably worth analysis and remembrance as an explanation of the symptoms in an occasional case.

*A personal communication from Dr. A. S. Tucker of Portland, Oregon, informs me that he has seen a similar case.

In the differential diagnosis the first point worth notice is the long established principle, that anomalies of development are seldom single, *i.e.* that an individual who has one anomalous organ usually shows other mal-developments also. In two of the three cases reported other failures of development were noted on examination. In the case with partial sacculation of the ovary, no failure of development was noted in the physical examination.

In each of the three cases the character of the pain was somewhat peculiar. In each a woman who had previously been free from pain, became subject to occasional brief but sharp attacks of ovarian pain unattended by anything which would suggest inflammatory reaction. In each there was increasing dysmenorrhea, but in each the attacks appeared during the menstrual intervals as well. In each they gradually became more frequent and more severe, until relief became imperative. A dull, dragging sensation in the pelvis was more or less continuous in each case towards the end of the history.

The immediate and complete relief of pain obtained by the release of the ovary from its enclosure within a rigid capsule was only what would be expected, and would probably have been secured without the resection of the ovary, which was performed in each case for the sake of the patient's future and a probable more complete relief of symptoms.

It seemed wise that the mouths of the pouches should be closed by sutures, not only to prevent possible reincarceration of the ovary, but also to do away with a possible source of intestinal strangulation.

In two of the three cases the physical examination failed to disclose any cause of the pain, and the operation was performed on the symptomatology only and therefore with some hesitation. In any future case with this form of pain I should be the more ready to operate from the experience gained in these cases.

The third case reported possesses another interest which can, perhaps, be fully appreciated only by those who saw it. The appearance of the double uterus was that familiar to all from the pictures in the text-books. From the shape of the two uteri it looked as though an organ formed by their union would be most abnormal in shape, but so soon as the inner aspect of each uterus was divided by a linear incision the cuts rolled open in a way that made it evident that they would come together nicely, and the shape of the resultant union at the end of the operation was almost that of a normal uterus, one which under exact description would have been called slightly cordate. The very marked improvement which has taken place in this girl's health and general nutrition must probably be attributed in part to the relief of pain, and in part to the removal of a distended and congested appendix, which for the sake of brevity was not mentioned in the record of the case; whether the relief of a moderate dysmenorrhea was in any way affected by the operation on the uterus must remain a problem. She is single, but if she should marry, her obstetric history might be of much interest.

Medical Progress.

PROGRESS IN THE SURGERY OF BLOOD VESSELS.

BY J. C. HUBBARD, M.D., BOSTON.

I DO not consider in this review some of the experimental work since at present it appears to have no definite clinical bearing.

Several attempts have been made to remove an embolus by opening the arteries and removing the clot.

Proust (*Bulletin American Society de Chirurgie*, Paris, 1911) had a patient with a mitral lesion who had a pulmonary embolism and hemiplegia. He had a sudden embolism of the left side. Diagnosis of the location of the clot was made by point tenderness. He was operated on twelve or fourteen hours after the embolism. The femoral artery was incised and the clot removed. As there was no bleeding from the vessel, a stylet and afterward a catheter was passed into the vessel in each direction. The blood finally ran. The vessel was then sutured. The discoloration of the leg decreased after the operation. Patient died the next day from his myocarditis, and a thrombus was found at the site of the operation. Proust found in literature the reports of five cases, all of which were failures.

Mosuy and Dumont (*Bulletin Academy de Medicine*, Paris, 1911) report, however, a very interesting case. A man of thirty-eight with a mitral insufficiency, probably of congenital origin. He entered the hospital because of his cardiac condition. While there, had a sudden pain in left calf, with complete loss of function of the left lower extremity. Six hours later the vessel was cut down upon. A sense of firmness gave the site of the clot. The vessel was opened. A bifurcated clot was pressed out from the common femoral with two arms reaching down into the profunda and the superficial femoral. The vessel was then sutured. Next day the leg was normal in appearance. Thirty-six hours after the operation pulsation was re-established in the posterior tibial. A month after the operation the leg was perfectly well.

Recently there have been several cases of arterial suture reported, mostly in patients with arterio-venous aneurysm. DaCosta (*Annals of Surgery*, April, 1912) reported a popliteal aneurysmal varix. He incised the vein and closed the opening from the artery to the vein from the vein side. This left too little of the vein to repair, therefore he excised that portion of the vein and did an end to end suture. Goecke (*Medical Klinische*, January 21, 1912)

treated a popliteal aneurysm the size of an apple by excision and then transplanted 10 cm. of the saphenous vein into the defect caused by the removal of the aneurysm. Clinically the case was a success. Four months later the man died from cardiac conditions, and a thrombus was found at the site of the suture, about which there was some sepsis.

Wiewiorowski (*Medical Klinische*, 1912, page 185) had an aneurysmal varix in the femoral region, caused by a bullet wound. There were two femoral veins, one of which was completely destroyed; 2½ cms. of this he resected, and did an end to end suture. The artery and the other vein each had four holes in it which were closed by sutures. Four months later pulsation in the popliteal and femoral vessels was good. There was none, however, in the dorsalis pedis. The pulsation of that vessel in the other foot was very weak.

A very similar case is reported by Vaughn (*Transactions of the American Surgical Association*, 1911). A case (*American Journal*, New York, 1912, page 83) by Eustis, of a similar kind, is worth mentioning, where there was an aneurysm of the brachial artery caused by an accidental stab wound. Before the operation the radial pulse on that side had disappeared. The hand was cold and pale. At the time of the operation the opening from the artery into the aneurysm was closed by suture. The distal extremity of the artery was found to be wholly excluded by fibrinous adhesions. These adhesions within the artery itself were overcome by passing in a grooved director and a soft rubber catheter. At the end of the operation the radial artery pulsated satisfactorily and the case was reported as a success.

Several successful cases of ligation of the subclavian for aneurysm have been reported.

Browne (*British Medical Journal*, 1911 page 1534) tied the first portion successfully.

Newbolt (*British Medical Journal*, October 5, 1912) also reports an aneurysm of the second and third portion of the left subclavian cured by ligature.

In an article on the treatment of subclavian aneurysm by Elliot in the *Annals of Surgery* for July, 1912, he makes the following statement:—

Aneurysm of the first position of the subclavian is rarely so placed as to permit proximal ligation of that part of the artery. While proximal ligation of the subclavian, whenever it can be successfully carried out, seems preferable to distal ligation of either that vessel or axillary, the latter procedure has proved its value as a secondary measure in cases where proximal ligation has been followed by a relapse of aneurysm.

The risk of secondary hemorrhage is still further lessened by the number and type of ligature. Two ligatures should be applied, separated by an interval of from a quarter to a third of an inch, of which the proximal should be tied with sufficient force to oppose the intima, and the distal ligature should be tied as tightly as possible. For the proximal, silk or Halstead is used. For the distal, chromic gut. The distal ligature (still on the proximal side of the aneurysm) ruptures the intima, and the resulting clot, beginning at this point, rapidly forms behind the friendly shelter of the proximal ligature and subsequently probably extends beyond it to the vertebral. The danger of secondary gangrene of the extremity seems to be comparatively nil after either ligation or excision.

Although with a very few exceptions the operative treatment of subclavian aneurysm has consisted in some forms of ligation of the artery or excision of the sac, there are in the literature several instances in which endoaneurysmorrhaphy, the operation of Matas, has been attempted.

In conclusion it may be stated that the most satisfactory treatment in aneurysm of the third part of the subclavian (or of either subclavian) is a ligature of the first part of this artery, together with its branches, with the possible exception of the vertebral; that such simultaneous ligation of the branches diminishes both the risk of secondary hemorrhage, and the possibility of subsequent relapse of the aneurysm; that, in the event of a recurrence, a cure may be effected by distal ligation of the axillary as close to the aneurysmal sac as possible. Should the aneurysm again recur, excision of the aneurysmal sac after the ligation of the main arteries supplying it should be attempted; that in many cases a cure of the aneurysm is marred by some permanent disturbance of the extremity, either motor, sensory, or trophic; that unfortunately, these patients are prone to the subsequent development of a fatal aneurysm of the aorta.

Finney, in the *Annals of Surgery* for May, 1912, gives his opinion about the wiring of otherwise inoperable aneurysms. In short, his statements are as follows:—

Wiring, then, is the only effective means at our disposal with which to combat this otherwise hopeless condition. The tendency in aneurysm of the aorta, in the vast majority of cases, is steadily progressive towards a fatal termination. Reason suggests and experience has shown that the only class of case in which this method offers any reasonable expectation of cure is in aneurysm of the sacculated variety, especially when of traumatic origin. It is not applicable to and should not be employed in the fusiform variety. The reason for this is obvious. The immediate risks of the operation, especially in aneurysm of the thoracic aorta, are not great. The immediate results attending this operation are sometimes striking. Perhaps the most remarkable of all is the diminution in pain. The ultimate results of this operation are necessarily somewhat disappointing when one considers the small percentage of cures. The observers insist that no cases are permanently cured. This, however, it seems to me is too extreme a statement.

A small percentage of cases have died as the immediate result of the operation. A larger percentage have died from the remote results of the operation. The vast majority have been improved by it. Improvement has lasted from a few days to a term of years. A few cases I believe can truthfully be said to have been completely cured. It is of the utmost importance that these cases should be kept as nearly as possible in a state of physiological rest for a term of months after the wiring.

Wheeler (*Transactions of the Royal Academy*, 1911, Vol. 29) reports the case of an abdominal aneurysm which increased in spite of medical treatment. By operation wire was passed into the aneurysmal sac. No electricity was used because of the complicated technic and fear of sepsis. Patient was shown seven weeks later, when the aneurysm pulsated less strongly and felt more firm.

SAPHENOFEMORAL ANASTOMOSIS.

Schaak and Hesse (*Annals of Surgery*, January, 1912). Transplantation of the vena saphena into vena femoralis at a new place by vascular suture produces normal physiological conditions for the venous blood circulation.

For a certain large group of varices the static and mechanical factors are of prime importance etiologically as well as the condition of the valves in the diseased veins and their insufficiency.

In the vena femoralis below the original junction with the saphena there is always a great number of valves. If the saphena is transplanted below such a pair of valves, the abnormal pressure from above can be checked by means of the interpolated valve. The new anastomosis must be made 10 to 12 cm. below the inosculation of the saphena.

The results were most thoroughly satisfactory. The most important and above all the most conspicuous phenomenon which must appear after the saphenofemoral anastomosis is the disappearance of Trendelenburg's symptom, previously present.

As to their effective results, the authors could ascertain in all their cases a diminution, even repeatedly, a complete disappearance of the varices. In every case the ulcers, which had hitherto defied every treatment, healed.

TRANSFUSION.

Transfusion is perhaps one of the most useful branches of arterial surgery at present. Scattered through literature are numerous accounts of new forms of apparatus for making the technique less difficult. None of these, however, seems to offer any advantage over the glass tubes of Vincent or Elsberg's cannula, except possibly Bernheim's tubes for use in infants. Bernheim (*Journal Medical Association*, April 6, 1912) was struck with the difficulty of the technic in transfusion for hemorrhagic disease of the new born. He, therefore, devised two metal tubes, one of which is inserted into the vein of the recipient and the other into the artery of the donor. When both are in place they are united. This method, and that of Vincent with the glass tubes, make the technic easier because it allows more room between the two patients.

Bernheim considers that liquid petrolatum, which is easy to handle and always at hand, is as satisfactory as paraffin for coating the tubes. Neither Vincent nor Bernheim claims that the flow through the tube will continue indefinitely without clotting, but that it will run sufficiently long to give a baby all the good blood that it may need.

In preparing for a transfusion the general impression now is that a test for hemolysis is unnecessary but that a Wassermann test is quite important.

A number of men speak in high terms of transfusion from vein to vein. Soresi (*Medical Record*, New York, Vol. 81, page 835) says that the advantages of the vein to vein over the artery to vein method are that the flow is slow and uniform without thus overcrowding the heart of the recipient; that no artery is destroyed; and that the technic is more simple. To have the transfusion a success, the vessels when united must be covered with warm wet gauze, and left so. The constant examining of the vessels to see whether the blood is flowing is bad technic. He says that testing the hemoglobin at five minute intervals will tell whether the transfusion is working. It will steadily increase if the flow is running.

In an article by Hartshorn (*Yale Medical Journal*, 1911, Vol. 18) Hartwell of New York writes in favor of the vein to vein method. He says that he has done recently six to eight cases with entire satisfaction.

Dorance (*Pennsylvania Medical Journal*, 1911 and 1912, Vol. 15) is also an advocate of the vein method.

The use of direct transfusion of blood is finally becoming limited to rather definite conditions. In the first place it is of undoubted value in hemorrhagic disease of the new born.

Scattered through literature are isolated cases of marked benefit following transfusion. Vincent here in Boston has done a number of cases himself (*Boston Medical Journal*, April 25 1912). He has made one improvement over the technic of others, in the use of the external jugular vein, as it is one of the largest superficial veins in the baby. He has allowed the blood to flow in his cases from three to six minutes.

Transfusion is also of benefit in replacing the blood lost by hemorrhage. In other secondary anemias and in primary anemia it is of only temporary benefit. Hartwell (Hartshorn's article, *Yale Medical Journal*, 1911-12, Vol. 18.)

Transfusion is also of benefit as an aid to improve a patient's condition so that he may undergo an operation.

Dorance (*Pennsylvania Medical Journal*, 1911-1912, Vol. 15) reports several cases where transfusion has been of benefit in this respect.

One case of hemorrhage from a duodenal ulcer. Blood count was red 18,900, white 7,500, hemoglobin 19%. Eighteen hours after the transfusion patient was operated upon, the bleeding vessels were located and the ulcer excised. He reports also, another case of a patient almost exanimated by an intestinal hemorrhage. The blood count was 1,230,000, hemoglobin 18%. After the transfusion the red blood corpuscles had increased to 3,250,000 and the hemoglobin to 44%. Forty-eight hours later there was another hemorrhage and the blood count fell again so that the hemoglobin was 18%. A second transfusion brought the blood up to normal. The patient refused operation. He also says that transfusion increases the coagulability of the blood, and therefore is of benefit when there is general capillary oozing.

David and Curtis (*Surgery, Obstetrics and Gynecology*, October, 1912) carried out a series of experiments which show the advantage of direct blood transfusion over saline infusion. Dogs were bled until almost dead. A salt infusion caused an immediate recovery followed by death in a few hours. A direct blood transfusion caused the same immediate recovery, but the result was permanent. They consider that the infusion of any fluid, even tap water, will have the same immediate stimulating effect. They consider direct transfusion the operation of choice, and infusion of salt solution a temporary measure till transfusion can be arranged. They are opposed to the injection of defibrinated blood, for if it is used fresh it may cause death, and if any fibrin is injected with it may cause an embolism.

They have devised (*Journal American Medical Association*, January 7, 1907) a "y" shaped cannula to determine the amount of blood transfused. To the arms of the "y" the vein and artery of the patients are tied. To the stem is fastened a glass syringe. By suction, blood can be drawn from the donor and then injected into the vein of the recipient. An exact amount of blood can thus be transfused. The whole apparatus must be coated with paraffin, and it seems not to be particularly advisable for use on man, although they report a successful human case.

As an aid to determine when to stop the flow Soresi (*Medical Record*, New York, Vol. 81, page 835) has suggested that the hemoglobin of the recipient be examined at frequent intervals. When it has increased about 30% the flow of blood should be stopped. The blood-pressure of the donor may also be watched and when it has fallen a number of points the transfusion should be ended.

ARTERIOVENOUS ANASTOMOSIS.

Perhaps the best way to present this subject will be to consider the arguments of those opposed to the operation and then of those in favor of it. One of the arguments advanced by those opposed to the operation is that the valves in the veins prevent the flow of arterial blood through the veins in the reversed direction.

Conen and Wiewiorowski (*Beit. Klinische Chirurgie*, 1911, page 313) have written a most excellent article, on the whole opposed to arteriovenous anastomosis as an operation. They experimented on dogs to determine whether the valves do or do not give away. They found that in dogs they do not give away. Should the veins give away, the flow in the capillaries would necessarily have to be reversed, and the artery would be found to contain venous blood. To determine whether this was possible they removed the kidney and sutured the iliac artery to the renal vein and vice versa. The renal vein after the operation pulsated freely but no blood came from the renal artery, showing that the reversal of the circulation in the kidney was not possible, and here there were no valves to interfere. From this they determined that the blood current when reversed could not get through the capillaries, although they recognized that the capillary system of the kidney is more complex than that of the lower extremities. They then removed a kidney and forced salt solution into the vein. The kidney substance itself would rupture before any of the salt solution would come out through the artery. They felt sure that a venous pulsation does not necessarily mean that there is a flow of blood through the veins. The pulsation might be due to the transmission along the wall of the vein, of the impact of the arterial blood forced against the valves by the heart's action.

They realized that inasmuch as their experiments had been carried on on dogs, and their deductions drawn about dogs, it was possible that they might be wrong when applied to the human. They, therefore, tested the valves in the veins of freshly dead bodies. By injecting the vein they learned that the valves were not forced. In one subject, however, a man of seventy-nine with arteriosclerosis, the valves did yield sufficiently to allow the injected fluid to pass by. These valves were insufficient because of the changes due to the arteriosclerosis. They considered it probable that in the human should the valves give away before the blood-pressure, the blood would not pass through the capillaries but through the numerous venous anastomoses till it reached a vein where the current was going towards the heart. They recognized that clinically some cases seemed to have been successful, though experimentally they could not bring their minds to believe in the operation.

Halstead and Vaughan, in the *Transactions of the American Surgical Association*, Vol. 29,

after going over the literature of the subject came to these following conclusions:—

CONCLUSIONS.

1. There is experimental evidence to show that in animals the circulation through the large veins of the extremities may be reversed, and that it is possible for the normal blood-pressure in the arteries to overcome the resistance of the valves of the veins.

2. Experimental and clinical evidence show that anastomotic opening is not permanent, but that gradual obliteration by intimal overgrowth takes place in event of the failure of early occlusion by thrombus.

3. There is not sufficient clinical evidence in the reported cases to show that the pressure of the blood in the arteries in the cases operated upon was sufficient to force the valves in the veins.

4. It is also shown by the cases reported that early occlusion of the vessels about the anastomotic opening by a thrombus was the rule, and in many the opening never at any time functionated.

5. In event of the arterial blood forcing the valves in close proximity to the anastomotic opening, it returns chiefly through the larger communicating veins and does not traverse the capillaries in many, if not most cases.

6. A study of traumatic arteriovenous aneurysm shows that with a normal arterial pressure it required weeks or months for the valves in the communicating vein to be overcome, as is evidenced by the gradual development of varicosities and the long delayed pulsation in the veins, remote from the seat of aneurysm. Under these conditions, the arterial blood supply is maintained partly through the usual collateral channels, which are unobstructed. In cases of gangrene from obliterating diseases of the arteries, the collateral vessels are already occluded. In such a case immediate reversion of the circulation is imperative. This cannot be accomplished at present:—

(*a*) Because of the obstruction offered by the valves.

(*b*) Because in many cases the circulating blood must also overcome the resistance offered by a thrombosed vein.

(*c*) Because the blood returns through the nearest communicating vein and does not reach the peripheral capillaries.

7. Our final conclusion is that there is but one indication for the application of arteriovenous anastomosis in surgery, *i.e.* in traumatic destruction of a principal artery, where an end-to-end union of the torn vessel is impossible. In such a case arteriovenous anastomosis might be attempted, and through it we might maintain a sufficient blood supply to preserve the integrity of the limb until an adequate collateral circulation was established.

Davies (*Annals of Surgery*, June, 1912) on the whole thinks a little better of the operation than those previously quoted. In his article he bids us remember that gangrene is not a disease itself, but the manifestation of some pathological change occurring in the body. In a great number of the cases gangrene is the expression of some change in the vessels. In such cases might arteriovenous anastomosis be considered. Compared with the means previously at our disposal, the operation has shown considerable advance, for not only have patients with actual gangrene recovered and enjoyed a period of relief from pain and of restoration of function for some months at any rate, but in other cases it has been possible by doing a local amputation in addition to obtain immunity from return of symptoms for much longer periods. He concludes that when considering arteriovenous anastomosis all other forms of conservative treatment must have been attempted first. The condition of nutrition of the patient must be good. Infection, if present, must not be extensive. Edema must readily subside on raising the foot, so as to prove that the venous circulation is sound. The most favorable cases are those in which the gangrene is only threatening. Pulsation must necessarily be present in the femoral artery and the femoral vein must be free from thrombosis.

He concludes that in erythromelalgia and Reynaud's disease, conditions where the arteries are generally pliable, uninflamed, and uncalcified, some effort should be made to save the limb by arteriovenous anastomosis in those cases where amputation would be necessary for relief of pain or gangrene.

Now to turn to those in favor of the operation. Glasstien (*Revue de Chirurgie*, 1912, Vol. 45) reports a case of cure where pain was relieved and threatened gangrene done away with.

Heyman (*Revue de Chirurgie*, 1912, Vol 45) also reports a favorable case of Reynaud's disease of the hand.

Bernheim, in the *Annals of Surgery*, for February, 1912, covers the ground most recently and adds a number of cases of his own. He reports two cases of Reynaud's disease. On one a lateral anastomosis was done between the femoral artery and the vein, and seven months later the circulation was in good condition. On the same patient an end to end anastomosis had been done on the other leg, and eleven months after the operation the leg was in good condition. He goes over the literature and finds that there are fifty-two cases, and he puts down 15 as successful, either in saving the leg from real gangrene or from threatened gangrene. He considers a lateral anastomosis better than an end to end.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

THE TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 30 AND 31 AND JUNE 1, 1912.

(Continued from page 205.)

DR. PORTER: I want to say that Abbott does not attempt or profess to correct the curvature at one sitting. The object is purely to compel the rib and the vertebra to gradually, slowly rotate. If we could fix the pelvis perfectly firm, and put the patient in this position and keep him there, day and night, the scoliosis would become corrected gradually; but we cannot do that. I want to caution you that the apparatus that Abbott uses is not well made. The principle of the apparatus, however, is correct.

DR. GOLDTHWAIT: If prolonged maintenance of the position that Dr. Abbott has insisted upon and some of us are now using were kept up, it would be undesirable, so far as the viscera are concerned; but it is maintained for only an exceedingly short time. It seems fair to recognize that it is probably not possible to maintain permanently the complete correction of all these cases. On the other hand, of the fact that improvement is possible, there can be no doubt, and much more rapid improvement than with the other methods.

A SIMPLE OPERATION FOR THE RELIEF OF CONTRACTURE IN CERTAIN CASES OF VOLKMANN'S PARALYSIS.

DR. LEONARD W. ELY, Denver, Col.: This operation was first worked out on a specimen in the laboratory. It was found that a simple division of the tissues between the tendons of the flexor sublimis, and the flexor profundus digitorum, and the bones in the distal phalanges would release the contraction. In regard to the causation of this condition I think that the experimental work of Lorenz and others has failed to prove their claim that it is the cutting off of the blood supply that produces Volkmann's paralysis. I think the paralysis is caused by the injury of the nerve, that may have been produced at the same time as the bone was injured, and not by the pressure of the splints upon the blood vessels.

DISCUSSION.

DR. R. H. SAYRE, New York City: If I understood Dr. Ely correctly, it was the division of the muscles in the distal phalanges that released the contraction.

DR. ELY: Not necessarily the division of these muscles, but of the tissues between their tendons and the bones.

DR. SAYRE: It is possible that there is more than one cause making the contractions in these cases. I think that Dr. Ely is incorrect in assuming that the experimental work of Lorenz and others has failed to show that cutting off the blood supply produces this effect, because if you cut off the blood supply for a number of hours this condition is produced.

DR. G. B. PACKARD, Denver, Col.: One point as to the causation of these cases: It has been shown that an elastic bandage does not cause this type of paralysis, but a flaccid paralysis; so in this case the paralysis was due to the splints.

PLATES FOR STATIC FOOT TROUBLES.

DR. WILLIAM E. BLODGETT, Detroit, Mich.: We are justified in making any kind of plate that will stop pain and still allow function. A plate made to conform to the shape of the sole is often not so successful as one of an arbitrary shape. In making the casts, no effort is made to get the foot into the shape that it would take if it were not flat. The pain, in the majority of cases, can be stopped by a very simple plate.

DISCUSSION.

DR. E. MCKENZIE, Toronto, Can.: I should like to ask where the plate stops in front. Does it extend until it passes under the heads of the metatarsal bones, or does it stop short of that?

DR. BLODGETT: It stops just short of the plantar surface, at the tarsophalangeal joint of the great toe.

THE MECHANICAL TREATMENT OF HIP DISEASE.

DR. GEORGE E. PACKARD, Denver, Col.: I believe that if sufficient mechanical treatment, in addition to proper hygienic measures, is instituted early in hip disease, a cure will many times take place with motion. Every means should be used in the early stages to effect such a result. Traction, fixation and protection from weight-bearing should be persisted in as long as there seems any possibility of obtaining such results. Early weight-bearing should not be allowed, as it favors ankylosis, absorption, and enlargement of the acetabulum. If stiffness persists after two years of treatment by traction, fixation and protection, and there seems to be little probability of recovery with motion and there is absolute freedom from sensitiveness, then weight-bearing, with fixation to prevent flexion and adduction, is the treatment of choice. Undoubtedly ankylosis is to be desired in many cases as the best possible result for future comfort and permanent cure. Therefore, the treatment should not be one of routine, but selected according to the indications in each individual case.

RESULTS IN HIP TUBERCULOSIS AFTER MECHANICAL TREATMENT (WITHOUT TRACTION) AND HYGIENE.

DR. HENRY LING TAYLOR, New York City: Seven patients treated by Phelps' brace are reported. Five children had their splints removed in the summer of 1910. All but one child had abscesses. They were all early cases, and of at least average severity. The average duration of the treatment to the time the splints were removed was three years. In the double case, moderate flexion has since been corrected, and two have had treatment for a weak knee. These two still use crutches; the others walk well without support. All the patients are now in good health; and in all the abscesses are healed. In all but one, who has thirty degrees of motion, there is only slight motion at the hip joint. In all, the position of the leg is excellent. In none does the shortening exceed one inch, except in the two girls with weak knee. X-ray plates show more or less enlargement

of the acetabulum, moderate erosion of the head (except in two), and the head in the acetabulum.

DISCUSSION OF DR. PACKARD'S AND DR. TAYLOR'S PAPERS.

DR. R. W. LOVETT, Boston, Mass.: We are not sufficiently careful about looking after the muscular atrophy that follows joint injury. More persons have stiff, irritable knees due to that than any other thing. There is also a large element of disuse in this condition. Athletes will not allow their joints to be fixed. They use them with light bandages. Accompanying the muscular atrophy in some cases there is a distinct atrophy of the bone, which diminished to one-third its normal width. A good many of the effects we see in chronic joint disease are possibly due to bone atrophy.

DR. L. W. ELY, Denver, Col.: How can weight-bearing cause a less amount of atrophy of the limb than a treatment that causes function of that limb? Muscular spasm is nature's method of putting the joint at rest. It cannot cause trauma to the joint. It is motion that causes the pain. Trauma may have a slight causative effect in joint tuberculosis, but hardly in the bone. Where the tuberculosis focus occurs in the bone, the bone is subject to trauma. The only way to find the solution to these questions is to ask "Why?" when any opinion is advanced regarding fixation and traction.

DR. H. A. WILSON, Philadelphia, Pa.: Weight-bearing is not the only method applicable to bony ankylosis, but it gets rid of some of the results of uncarefully applied fixation and confinement in bed. The physical improvement of twenty patients with tuberculosis of the hip who were in Atlantic City all winter, who never slept in warmth in their room, and with very little fixation, has been phenomenal, and it shows that the emaciation that we see when there is fixation in bed and disuse is not present. When there are enough cases to form a reasonable basis for analysis, in showing that there is a possibility of doing with tuberculosis what is being done with scoliosis, where the work being done seems marvelous, we are progressing toward the solving of the problem.

DR. P. W. NATHAN, New York City: Our duty lies in the direction of finding, in the beginning, which cases will do well with extension and which are best adapted to fixation.

DR. F. H. ALBEE, New York City: I could show x-rays of cases where there has been such a tremendous rarefaction of the head of the femur that it gave no more density than the softer tissues in which it was imbedded. That type of case should have weight-bearing removed, and be either placed in bed with traction, or put into a brace that would prevent weight-bearing, if not produce traction.

DR. VIRGIL P. GIBNEY, New York City: I believe that the x-ray is not always so reliable as some people make out. This question of rarefaction is a puzzling one among radiologists. Some say that it means tuberculosis, and others that it does not. I am still a believer in the value of a full history of the patient and how he behaves under different circumstances. In my later work I have religiously used the plaster spica in all early cases, and the results have been so uniformly good that I have sometimes questioned its being tuberculous. I have wondered whether it was not infection of some kind. I have been trying for some time to get some ambitious member of the staff to collect two or three hundred of these cases and get their end results. In many cases of x-ray plates that I see from men whose reputation is great for that line of work, I find that they cannot tell whether it is a degenerative or a regenerative process that is going on in the head and neck of the femur. I believe that many of these cases are regenerative, and throw out bone to protect the parts about the joint.

DR. JOSEPH ROOT, Hartford, Conn.: There is a sensitive stage in every case, which you can see without the aid of x-rays or anything of that sort. It would seem to me that this is the stage when the child should be kept quiet. I do not believe that we have any preambulatory extension that can be as much protection to the joint as the ordinary fixation.

DR. CHARLETON WALLACE, New York City: Three years ago I took out an armful of pictures containing some coxa varas and tuberculous lesions, etc. The plates that showed the least amount of bone destruction were the ones that had had only plaster of Paris treatment and rest in bed. The cases that had had brace treatment had more destruction of the head. Some had pathological displacements. The solution of the problem, I believe, will be in raising the resistance of the patient. He should be out of doors all the time, and get good nourishing food. He should be kept from brain fatigue and brain tire.

DR. G. G. DAVIS, Philadelphia, Pa.: There are two kinds of spicas. One is the short spica, and the other is the long spica. I am opposed to the short spica; and I believe a long spica, from the waist to the toes gives fixation and rest, and that the short spica does not. So far as the treatment of the active stage goes, I believe in absolute rest in bed, with as much fixation as one can obtain. The long spica should be kept on until the patient can be out of bed, when a high shoe on the opposite side and crutches should be put on—instruments to be resorted to only when all active symptoms have subsided. Our experience has been that children do better in our hospitals than at home. Personally, I look with suspicion on the convalescent homes. The general condition improves and the local condition deteriorates.

DR. B. E. MCKENZIE, Toronto, Can.: I have thought that traction was meant to serve a double purpose; that of keeping the head of the femur in such a position that it will not be brought violently into contact with the acetabulum, and that of preventing deformity. We cure the disease by enabling the resistance from within to throw off the affection. The part where the tuberculous lesion is should be exposed directly, for hours every day, and this treatment continued for months. I believe that no long brace has ever supplied complete fixation for the joint.

DR. C. J. JAGER, New York City: There should be a distinction drawn between the short spica and the Lorenz spica. The short spica will not fix the hip; but the Lorenz spica fixes it absolutely.

DR. T. H. MYERS, New York City: The focus is sometimes in the epiphyseal line, and sometimes in the acetabulum. In the first case the amount of immobilization needed is very different from what is needed when the findings show that the focus is in the joint itself. There was a case in which the x-ray showed a destruction of fully one-half the head. I saw the case two years afterwards, and there had been a regeneration of the head to its normal shape.

(To be continued.)

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THE MILK SITUATION IN MASSACHUSETTS.

AMONG the most important hygienic problems of corporate social communities is that of procuring and safeguarding the purity of water and milk supplies. The larger the community, the more important and the more difficult does this problem become. Of the two, the water supply is on the whole the easier to secure and maintain, since it does not involve, as does the milk supply, the constant production, handling, and transportation of a quickly perishable and readily contaminated animal food product. The Boston metropolitan district is singularly fortunate in the admirable and adequate water supply with which by wise and judicious foresight and honest administration it is provided. The condition of its milk supply, however, though far better than it was some years ago, is still not satisfactory. What is needed now is an adequate and simple scheme of legislation lodging in proper and efficient hands the responsibility and power to direct, control, and supervise the milk producing and distributing industry in this state in such way as to guarantee the purity and quality of the supply.

Two years ago a measure, known as the Ellis milk bill, aiming to secure this end, was passed by the General Court but vetoed by the Governor. Last year, this bill was reintroduced, but did not pass the Legislature. This year the Ellis bill, in slightly modified form, is again before the House for consideration. The situation is as urgent as before, and the manner in which it may be met is important. For this reason a review of the Ellis bill and of the conditions for which it seeks to provide seems desirable.

The chief provisions of the Ellis bill, or the consumers' bill as it is now termed, have been summarized as follows:—

"1—Milk regulations are to be administered and inspection supervised by the State Board of Health. In order to secure efficiency, it is vital that the supervision of the health of the State shall be in charge of one central authority. Milk health work and other health work are so closely related that they should be administered by the same authority. In case of milk-borne epidemics the State Board of Health would have jurisdiction anyway.

"2—These regulations governing the production and sale of milk are to be passed by a board of five, appointed by the governor, of whom two shall have had practical experience in milk production. This is fair to the producer and makes it certain that nothing unreasonable will be asked of him. Two members are to be physicians or bacteriologists and the fifth a sanatarian. The last three can be appointed from the State Board of Health if desirable for the sake of unity. This Board serves without compensation, as it has nothing to do after the passage of the regulations except to amend them when it seems necessary.

"3—The powers of the local boards of health are carefully preserved.

"4—The State Board of Health will coördinate its work with that of the local boards, covering vacant spots, but encouraging local boards to do the work themselves. Most of its actual inspection will be confined to out of the State dairies, from which over half of our milk comes. Its supervision will enable it to prevent annoying and uneconomical duplication of inspection.

"5—All producers will be registered and dealers must take out permits from the State Board. This can be done by mail. No fee is charged. Neighbors selling not over five quarts a day need not take out permits. This exception is less than a can and therefore such milk would not be likely to get into the general milk supply."

This measure, as it stands, is favored by the Massachusetts Milk Consumers' Association, which has issued the following statement of its arguments and reasons for desiring the passage of the bill:—

"1. It does not create a new administrative department. The State Board of Health is already thoroughly equipped for the work with up-to-date laboratories.

"It is prepared to make water analyses, examination of cultures, bacteriological tests, and to do all other processes necessary for discovering sources of infection and for preventing epidemics.

"2. It puts the administration of the act in

the State Board of Health, thereby securing the maximum degree of efficiency in the work of reducing the infant mortality by preserving unity in the administration of the work for the prevention of diesase.

"3. The State Board of Health was organized for the purpose of protecting the public health. It is disinterested and has in mind only the public welfare. Supervision of the milk supply by it would give the public a guarantee of purity which would be worth something.

"4. It will give the producers an impartial guaranty of the purity of the milk. Such an independent guaranty is needed because 'the confidence of the consumers is the backbone of the milk business.'

"5. It provides for the coöperation of the State Board of Health with the local boards of health in the inspection of milk and dairies, simply broadening the existing relations between the two and supplying a central coördinating and supervisory authority which will enable the local boards to lay out their work in such a way as to avoid overlapping and omissions. Wherever the local boards, the local milk inspectors or the local cattle inspectors are doing effective work it will be accepted by the State Board of Health in lieu of its own inspection, but the responsibility for seeing that the entire field is properly covered will be concentrated in the State Board of Health.

"6. By denying a permit to any dealer who sells milk from the dairy not approved by the State Board of Health, it stops the unfair competition of out-of-state uninspected dairies with Massachusetts producers, and as over half of our milk comes from out of the State its control is essential to the health of the State.

"7. While preserving unity of administration in health matters, it safeguards the interests of the producers in such a way that there is no possibility of doing them any injustice.

"8. The members of the State Board of Health and of the committee to pass regulations are all appointed by the Governor with the consent of the Council. Thus through the Governor they are all responsible to all the people of the State. This is as it should be, because their action affects all the people of the State and the legislation is demanded for the protection of all."

In contradistinction to this, may be cited, as representative of the arguments of the opponents of the Ellis bill in its original form, the following passage from the annual report of the secretary of the Massachusetts State Board of Agriculture:—

"The most important milk measure of the year was the so-called Ellis milk bill. This was a most pernicious measure, providing as it did for inspection of milk producers in Massachusetts, and, in the opinion of your secretary and that of many perhaps qualified to form an opinion as to the legal effect of the bill, utterly failing to properly provide for like inspection for the milk producers of other states.

"In addition, there were numerous objections to the bill in question, notably that it provided for inspection primarily for the benefit of the metropolitan district at the expense of the people of the whole state, producers as well as consumers; provided a uniform system of inspection throughout the state, regardless of the needs of various communities, which differ as their supplies differ, and placed too much stress on the inspection of barns and their equipment, on the theory, long since exploded, that these are controlling factors in the production of clean milk.

"As has been shown again and again, the man is the chief factor in the production of clean milk. A clean man can make clean milk under adverse conditions and a man who is not clean can never make clean milk, no matter what his equipment may be.

"The proponents of this bill should stop to consider that more can be done to induce dairy farmers to make clean milk by offering legitimate rewards than can be done by beating them over their heads with the inspection club or any other.

"The call for a uniform standard of inspection is also based on wrong premises. There should be no uniform standard of inspection. It may very well be that the standard applicable to Boston would not do at all for Brockton or Worcester, while the standard for those cities might not be at all suited to the needs of towns like Greenfield or Westfield.

"What is really wanted is a reduction of the number of inspecting bodies, not a uniform system of inspection with the same number of parties at work.

"In spite of these very manifest objections, which were all brought to the attention of the committee who had the bill under consideration and of the Legislature as a whole, the bill which would, in our opinion, have dealt a severe blow to the dairy industry of Massachusetts was duly passed by both branches, and only prevented from becoming a law by the veto of the Governor.

"This board is as desirous of seeing the milk supply improved as is any other body of good citizens, but our method is not that of the supporters of the Ellis milk bill."

On careful consideration of both sides of this important question, it seems that on the whole those who favor the present bill have a better case than its opponents. The bill is not an ideal measure; but is as good as any that the legislature would be likely to pass. Though some of its details could to advantage be modified, its spirit and its main provisions are good. It

would provide a working method, in the main satisfactory, for regulating, supervising, and administering the milk production and traffic in Massachusetts. We hope and believe therefore, that it will be enacted into law.

One important further complication of the situation is the difficulty of controlling milk supplies coming from sources in other states. This can be done effectually only by interstate agreement. Interestingly enough at this juncture, there met last week in New York City a conference on state milk control and bovine tuberculosis, which was attended by representatives from Baltimore, Boston, Newark, N. J., New York, Philadelphia and Providence, R. I. The Massachusetts delegates to this conference were Mr. P. M. Harwood, general agent of the Dairy Bureau, Dr. Mark W. Richardson, secretary of the State Board of Health, and Mr. Charles W. Wood, president of the Cattle Owners' Association.

Report from New York on Feb. 6 summarizes the results of this conference as follows:

"State inspection of the milk supply of the larger cities of the East and Middle States was favored in resolutions adopted at the conference. On the question of State control, a point urged by the New York milk committee which called the conference in the hope of obtaining some action looking to uniform laws in the nine States represented, there was a wide divergence of opinion. The New York milk committee favored a State milk board but this plan was abandoned in favor of State control of dairies and shipping stations by the State department of agriculture which the delegates also decided should have the power of veterinary inspection of cows and sanitary inspection of barns, water supplies and drainage. It was explained that dairymen generally feared an increase in the cost of production if a new authority were created as proposed by the New York milk committee.

"A motion was also adopted favoring State control over the manufacture and handling of milk products. By demanding State control the delegates expressed a hope of getting away from the triple inspection to which the dairies are now subjected in some states by the Federal, State and municipal authorities. Many considered excessive inspection synonymous with increased cost of living and thought they saw their way out of the difficulty by advocating State supervision."

Thus far these conclusions do not promise to bear important fruit. They indicate, however, at least that the question of interstate cooperation in regulation of the milk supply is being seriously considered. The problem is large and complex, and it is only by such repeated consideration that we can hope ultimately to arrive at its satisfactory solution.

MILK GRADES AND PASTEURIZATION.

Dr. Ernest J. Lederle, the Metropolitan Commissioner of Health, has issued to the public a circular describing the plan of milk grading now enforced by the Department of Health in New York City, and advising the citizen body of the official requirements in order that the latter may know precisely what quality of milk is being bought. All milk, whether in bottles or cans, is henceforth to be labelled with the grade for which a permit has been issued. Three grades only may be sold, the first for drinking, the last for cooking. Grade A, which is suitable for infants and children, is to be sold only in bottles, the caps of which must be marked "Grade A"; this grade comprises certified milk, guaranteed milk, inspected raw milk and selected milk pasteurized. Grade B is suitable for adults, and comprises pasteurized milk and selected raw milk; it is sold in bottles or cans, caps and tags of which must be marked "Grade B" in large green letters on a white ground. Grade C is suitable for cooking only and, from the sanitary standpoint, is the poorest milk that is permitted to be sold; *it should never be used for babies or children;* this milk must be plainly marked in red letters "Grade C for Cooking"; and all milk stores carrying it must display a placard so stating.

All pasteurized milk of either grade must plainly be so labelled; the Department considers milk thus treated to be safer than raw milk of the same grade. Whenever milk is sold for immediate use by adults, as in restaurants, hotels, clubs, bakeries, lunch counters and dairies, it must be either A or B quality. Whenever possible bottled milk should be bought so that the quality may be known from the label. Grade A milk should be used for infants, and if this be beyond the mother's purse she is advised to apply to the nearest infant's milk station in New York City, of which there are many in that community, a list of them being published by the Department. Grade C milk should never be used for infants. The Pasteurized Grade B milk is the safest; and should raw Grade B milk be bought, it should undergo pasteurization or boiling in the household.

Here is an official act of beneficence which

it were difficult to overrate, and one most noteworthy of emulation in municipalities not thus provided. Practitioners are familiar with the outrageous and really occasionless urban infant mortality, which is due most of all to bad milk. It is not Providence, but bad milk, that kills these babies that have suffered from the gastro-enteric inflammations and from ingestion tuberculosis. Breast fed infants seldom contract these diseases; bottle milk is responsible for most such cases. The importance of a pure milk supply for any community has long been realized by conscientious health officials; and much has been accomplished during several decades past to this end—mainly by altruistic physicians and sanatarians, against business and political interests.

The kind of milk that was sold a generation ago could get no place in our market of today; it would instead flood our gutters. Some of it, in places where health officers do their duty, still finds its way there. No one will deny that much is yet to be done. Apart from abnormal bacterial content, there is yet sold much milk contaminated with dust and cow-manure, and material deposited by bacteria-laden flies. (These impurities, by the way, could be almost entirely excluded by the simple contrivance of a cheap cloth fastened over the top of the milking pail and renewed for every can or two). That millennial era when all raw milk, from healthy tuberculin-tested cows, shall remain rich and pure in its successive and very devious migrations from the udder to the consumer's lips, is not now in sight; and until this era is reached the claims for pasteurization imperatively demand consideration.

One deduces from the perusal of Dr. Lederle's circular that this process has his approval with regard to most of the milk that is sold in New York City. Indeed, in no other way can the transmission of such infections as typhoid fever, "sore throat of milk-borne origin"[1] be absolutely prevented; there have been milk-borne epidemics of such diseases in which the dairyman and the dealer, though they might have been held blameworthy for carelessness and ignorance, could not have been accused of downright perversity: pasteurization would very likely have obviated epidemics of this kind.

One opposes pasteurized milk as "embalmed milk"; that it is as if one had to choose between water from a pure mountain spring and such as would be filtered from a cess-pool. But unclean milk should have no standing whatever in the market, however prepared for human consumption; the authorities must insist on decently clean milk in the first instance, after which pasteurization may be councilled. Milk thus prepared would seem to be cleaner than raw milk; and to average about one quarter the bacterial count of the latter, according to Dr. P. G. Heinemann's investigation in the University of Chicago of milk sold in that city.[2]

Some object that pasteurization does not destroy toxins, that it does destroy enzymes, and causes scurvy and rickets; but these objections do not seem well sustained. In any event they are certainly not sufficiently valid against pasteurization. The process is extremely simple; the milk is kept for twenty minutes at a temperature of 165° F., and then rapidly cooled; by this process many bacteria are killed and their toxins eliminated. There are contrivances by which the house keeper can easily do this as a matter of domestic routine; which had perhaps best be done even for certified milk. Many producers regularly pasteurize their product, however excellent it is before marketing it. Pasteurization of milk should be as easy and should be as inexpensive as by the apparatus used in breweries to render beer sterile for adults; and if to do this is a part of the brewery business, how much more should it obtain for the milk by which tender infant and child life must be maintained.

[1] Rosenow, E. C.: Streptococci from Milk and from Epidemic Sore Throat. Jour. Infect. Dis., Nov., 1912.
[2] Jour. Amer. Med. Asso., Oct. 19, 1912.

THE DIAGNOSIS OF FEEBLE MINDEDNESS.

In this issue of the JOURNAL Dr. J. G. Wilson sounds a note of warning to medical examiners in the Immigration Service against the danger of placing entire confidence upon any single method of examination, in an article (p. 226) entitled "The Diagnosis of Feeble-Mindedness among Immigrants." We believe that this warning note should also be heeded by those specialists whose patients are *not aliens*. Apparently in response to a real need, there has come into vogue a great number of artificial aids in determining the mental status of individuals and many attempts have been made to grade intellectual ability with the same degree of accuracy as the college professor marks an examination paper. If it is impossible to do this among im-

migrant people a little reflection will suffice to show that it is also impossible among the native born. As pointed out by Wilson the essence of feeble-mindedness consists in the fact that the feeble-minded of all degrees are lacking in the power of *constructive imaginaton.*

To determine the presence or absence of this ability is the crux of the whole matter. In common with the normal mind the brain of the defective is capable of imaging past experiences. That is to say, he has the power of *reproductive imagination* developed. He is also able to locate the image in point of time and place and is therefore gifted with the power of memory. But even though his intelligence is active in so far that he responds to external stimuli and afterwards remembers what sensations these stimuli awakened in him, he is incapable of combining old experiences so as to form new patterns. Like the lower animals his conduct becomes stereotyped. This is well illustrated by Johnstone, who cites the case of a feeble minded boy who had been taught to plow. One day he was started at his work in the usual manner and returned from the field at the sound of the dinner horn with an index finger completely torn off. It was afterwards ascertained that he had met with the accident several hours before, but that it had never occurred to him that the unusual experience should in any way alter his usual routine work. Being so utterly deficient in constructive imagination the feeble minded person is unable voluntarily to adjust himself to existing social conditions. These conditions are not only different in different communities but they are constantly changing in the same community, therefore it is apparent that any one scheme or artificial aid to determine this power of adjustibility must be very flexible to the demands of "common sense." The presence or absence of "common sense" is what must be determined in the patient and to do this requires the presence not only of technical skill but also "common sense" in the examiner.

The difficulty of measuring intellects by "rule of thumb" is further illustrated by the fact that varying degrees of "constructive imagination" are what constitute the various grades of genius among individuals of normal intelligence. Thus the inventor reacts to old facts known to every one so as to produce something new; the literary genius takes experience common to the race and creates a unique work. To measure in terms of figures and percentages the amount of creative imagination possessed by the inventor and the poet is manifestly absurd. To profess to determine its entire absence by any strictly mathematical contrivance impresses us as being equally impossible. Therefore we are inclined to agree with the author of the article upon which our remarks are based when he says that "the more carefully one studies the whole question of feeble mindedness among immigrants the more he will become convinced that the diagnosis must be established by a careful weighing of all the evidence which every reputable method of examination can furnish. The Binet tests, the Di Sanctis tests, the apparatus of Healy and Fernald, are all useful as adjuncts and are especially valuable in determining the line along which the alien should be especially examined and in thus helping one to come to a rapid conclusion. But upon whatever method or combination of methods the examiner finally comes to place the most reliance, he should always bear in mind that what he really desires to determine is whether or not the alien is lacking in one or more mental traits which will make it impossible for him to assume his normal relations to society."

These remarks can very well be extended to include the native as well as the alien. If the *absence* of "ability to assume normal relations to society" be held as the *sine qua non* of the diagnosis of subnormal minds there will be no danger that any of the valuable "mental tests" will be allowed to usurp the domain of common sense and good judgment.

VENEREAL DISEASE.

In our issue of January 16th Dr. John H. Cunningham contributed an article on venereal disease in which he presented conclusive evidence of the widespread existence of these diseases and the very serious consequences which gonorrhea and syphilis often entail. Death, invalidism and sterility are among the common indirect results of gonorrhea in women. It frequently causes sterility in the male also and to it are attributed a large proportion of the childless marriages among officers of the German army. Syphilis, as is well known, kills many young children, destroys the health and ruins the lives of many more, whereas gonorrhea is responsible for the blindness of many. Add to this the effects of syphilis on the central nerv-

ous system including among its results tabes, paresis and insanity and we have a list of ailments due directly to the two principal forms of venereal disease which, when seriously considered, is nothing less than appalling.

Dr. Cunningham urged that we should look the issue squarely in the face instead of refusing to recognize our duty because it is an unpleasant one.

By way of practical suggestion he proposed that boards of health should everywhere undertake to assist physicians in the diagnosis of venereal infections much as they do now in cases of diphtheria. He believes that the responsibility for the spread of these diseases rests primarily with the boards of health which can, if they will, take steps to control them. We are in complete sympathy with Dr. Cunningham in the views expressed and we feel that it is a duty of our profession to bring about a change of public sentiment in regard to venereal disease. Radical preventive measures will then inevitably follow.

THE FORSYTH DENTAL INFIRMARY.

The dental papers published in this issue of the JOURNAL call renewed attention to the public importance of oral hygiene and instruction for children, and to the approaching completion of the Forsyth Dental Infirmary which will make possible the realization of some of our ideals in dental care and prophylaxis. The Infirmary, whose beautiful marble building is an architectural as well as a sociologic adornment of our city, has recently issued a pamphlet, prepared for the International Congress of Hygiene and Demography, at Washington last September, in which are outlined not only the plans for the institution, but the nature of the work which it will have to do and the spirit in which that work is to be undertaken.

"The acute dental needs of the children have never been fully recognized outside of the profession; their importance has never been acknowledged. Until municipalities recognize these needs and their obligation to meet them, the work must be carried on by independent foundations. The Forsyth Dental Infirmary represents the first attempt on an adequate scale to satisfy the requirements.

"This is a plea for recognition of the right to develop children physically as well as mentally at the public expense. The private dental clinic would eventually obtain public support in giving freely expert advice and dental treatment to pupils in the schools.

"It is an aim that should be encouraged to the extent of providing for children in poverty whose parents cannot pay for the treatment needed. Public support and all charitable support, should stop here."

The work is indeed of great importance, and rightly administered should be capable of accomplishing immense good in the community.

MEDICAL NOTES.

FLY EXTERMINATION IN FINLAND.—Report from Helsingfors, Finland, on Jan. 30, states that an active popular movement is in progress for the extermination of the domestic fly from that country.

ILLNESS OF PRINCE ADALBERT.—Report from Berlin on Feb. 1 states that Prince Adalbert, third son of the German Emperor, is ill with pneumonia, following a recent attack of measles.

CONTINUED ILLNESS OF THE CZAREVITCH.—Report from St. Petersburg on Feb. 3 states that Dr. Eugen Enderlen, professor of surgery at the University of Würzburg, Germany, has been summoned to attend the Czarevitch Alexis.

CONFERENCE TO REGULATE THE USE OF SACCHARINE.—Report from Paris states that on Feb. 3 an international conference for the regulation of the use of saccharine and analogous substances was opened in that city. Delegates were in attendance from France, Germany, Italy, Russia, Switzerland, Holland, Belgium, Portugal, and Greece.

THREE BRITISH CENTENARIANS.—Mrs. Daniel Swinford, who died on Jan 3, at Minster, Isle of Thanet, England, was locally reputed to be 100 years of age.

Mrs. Moore, of Plymouth, Devonshire, is said to have been born on Jan. 20, 1811.

Mary Fehily, who died on Jan. 5 at Middleton, East Cork, Ireland, was alleged to be 104 years old. She had for many years practised the habit of smoking tobacco.

A MEDICAL MARTYR.—The knowledge has recently been made public that Dr. Sir George Turner, of England, has become a leper, having contracted the disease during his service at the leprosy hospital in Pretoria, South Africa.

Dr. Turner, who has rendered distinguished duty in fields of research and preventive medicine, is now living in retirement at his home in Devonshire, where he "awaits the inevitable end."

A Living Indian Centenarian.—Wah-Hah-Gun-Ta, a Blackfoot Indian chief at the Glacier Reservation, who is known to have visited Thomas Jefferson while the latter was president, is reported to have been born in 1781. He is said to preserve still an active and vigorous physical health.

Two Centenarians.—James Thomas, who died last week at Monett, Mo., is said to have been born in 1807.

Sarah Ann Byles, a negress, who died on Jan. 29 at Frederick, Md., was locally reputed to have been born in 1798.

Institute of Dental Pedagogics.—At the twentieth annual meeting of the Institute of Dental Pedagogics, held last week in Pittsburg, Dr. D. H. Squires, of the University of Buffalo, was elected president of the organization for the ensuing year.

Conscientious Objectors in California.—Report from Berkeley, Cal., states that 1200 pupils have recently withdrawn from the local public schools in protest against a joint order issued by the boards of health and education compelling immediate vaccination of all children on account of an epidemic of smallpox now prevalent in that city.

Fire in a Hospital.—Report from Big River, Saskatchewan, states that on Feb. 4 the local hospital was destroyed by fire. Eighty patients were safely removed from the burning building. The loss is estimated at $20,000.

BOSTON AND NEW ENGLAND.

Opium Raid in Boston.—In Boston last week custom inspectors raiding a Chinese laundry found and seized an opium-smoking outfit and several hundred dollars' worth of the drug.

Milk Fines in Dorchester.—Before the Dorchester municipal court last week four local milk dealers were fined $10 each, and two $50 each, for various violations of the milk laws.

Scarlet Fever in Rhode Island.—Report from Cranston, R. I., on Feb. 6 states that scarlet fever is at present epidemic in that town and that the local public schools have been closed.

Massachusetts Homeopathic Hospital.—At the annual meeting of the Massachusetts Homeopathic Hospital, held in Boston recently, the reports showed that 6007 house patients were treated in 1912. as against 5213 in 1911. There was a deficit of $18,281 for the year 1912.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 1, 1913, is 252, against 274 the corresponding week last year, showing a decrease of 22 deaths, and making the death rate for the week 17.87. Of this number 126 were males and 126 were females; 241 were white and 11 colored; 158 were born in the United States, 89 in foreign countries, and 5 unknown; 56 were of American parentage, 165 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 60 cases and 5 deaths; scarlatina, 61 cases and 0 deaths; typhoid fever, 5 cases and 0 deaths; measles, 177 cases and 4 deaths; tuberculosis, 61 cases and 27 deaths; smallpox, 1 case and 0 deaths. The deaths from pneumonia were 40, whooping cough 3, heart disease 34, bronchitis 4. There were 13 deaths from violent causes. The number of children who died under one year was 38; the number under five years 57. The number of persons who died over sixty years of age was 75. The deaths in hospitals and public institutions were 111.

Cases of infectious diseases reported to the Boston Board of Health for the week ending February 4, 1913, are: Diphtheria, 50; scarlatina, 57; typhoid fever, 2; measles, 177; smallpox, 0; tuberculosis, 58.

The death-rate of the reported deaths for the week was 15.95.

Non-resident cases are included in the total cases.

NEW YORK.

Mount Sinai Hospital—The annual meeting of the directors of Mount Sinai Hospital was held on January 26, when the report of the president, George Blumenthal, for the fiscal year showed that the receipts were $448,294 and the expenditures $450,661. Legacies and bequests

amounted to $56,165 and donations to $30,633. Two gifts to the endowment fund, each of $10,000, were received bringing the total fund up to $235,000.

The total number of patients treated in the hospital during the year was 8,204, of whom 5,386 were free patients. 1,071 paid a nominal rate, and 1,315 were full-paying patients. In the dispensary 236,297 patients were treated. Work on proposed extensions to the hospital is to be commenced next summer, and of the estimated cost of these ($1,350,000) $650,000 has already been subscribed.

LABORATORY OF SOCIAL HYGIENE—It is announced that in connection with the Bureau of Social Hygiene, a private and independent organization formed in 1911, there has been established at Bedford Hills, Westchester County, a "laboratory of social hygiene" adjacent to the reformatory there. In this it is purposed to have a study made by experts of the physical, mental, social and moral characteristics of each person committed to the reformatory.

REPORT OF CORONER'S OFFICE—The report of the coroner's office of Manhattan and the Bronx for 1912 gives the statistics of the deaths reported to the office during the year and recommends additional legislation for the protection of the lives of citizens. There were 2,712 deaths by violence, of which 474 were suicides, 114 homicides, 267 due to burns, 146 from automobile accidents, and 108 due to horse-drawn vehicles. The coroner's physicians made 619 autopsies.

Current Literature.

MEDICAL RECORD.

JANUARY 25, 1913.

1. POLK, W. M. *The Works and Needs of the Academy of Medicine.*
2. *HOROWITZ, P. *A Further Contribution to the Action of Lactic Acid Bacilli on the Percentage of Glucose in the Urine in Diabetics.*
3. DARDEL, J. *Gonorrheal Rheumatism in Arthritic Subjects.*
4. ROSENBERG, L. *The Sanatorium or the Home?*
5. BENEDICT, A. L. *The Influence of Sodium Chloride on the Hydrochloric Acid Secretion by the Stomach.*
6. PLACE, F. *Bibliographic Style in Medical Literature.*

2. Horowitz writes another paper on the effect of lactic acid bacilli on glycosuria, giving further information about cases previously reported, and citing new ones in support of his contention. His comprehensive conclusions are as follows: In all cases of diabetes changes in the pancreas, especially in the islands of Langerhans, are probably present, with perhaps irritation and changes in the suprarenals, the thyroid, the nervous system and the hypophysis and these changes are caused by an auto-intoxication. In cases without indicanuria and with no auto-intoxication, there is usually a definite cause of glycosuria, such as thyroidectomy or ether narcosis. By correcting auto-intoxication we remove irritating influences on the sugar-regulating apparatus. Now bacillus bulgaricus overcomes intoxication by destroying putrefaction, making the reaction of the intestinal tract acid and inhibiting carbohydrate digestion so that only small amounts of sugar are formed and absorbed. Properly administered in cases of diabetes, lactic acid bacilli thus gradually increase carbohydrate tolerance until it becomes normal. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 25, 1913.

1. KNOPF, S. A. *Tuberculosis and Other Diseases in Schools and Colleges.*
2. KONKLE, W. B. *Sex Ethics; a Medical Orientation.*
3. SCOTT, G. D. *Value of Pertussis Vaccine.*
4. *BOGGS, R. H. *Malignant Growths.*
5. MORTON, R. S. *The Education of the Public in Personal Hygiene.*
6. KAHN, L. M. *Abdominal Rigidity.*
7. HARRIDGE, D. F. *Concomitant Convergent Squint.*
8. MCMURTIE, D. C. *Crippled Children in the English Public Schools.*
9. EHRENRICH, S. G. *Incipient Pulmonary Tuberculosis.*
10. TUPPER, P. C. *Alkalies and Hyperchlohydria.*

4. Boggs makes a plea for more conservative treatment of malignant disease. As experience enlarges with a great number of cases traced out carefully to their end results, men are questioning the wisdom of treating all malignant growths by the most radical means possible. More conservative treatment is necessary if we are to obtain more positive results in curable cases and greater palliation in hopeless cases. The Roentgen ray is very valuable in all cases, and with many practitioners it is superseding all other methods, even excision, in the treatment of epithelioma. [L. D. C.]

THE LANCET.

JANUARY 11, 1913.

1. *MARTIN, C. J. *Horace Dobell Lecture on Insect Porters of Bacterial Infection. Lecture II.*
2. HALL, A. J. *Two Cases of Colloid Tumor of the Third Ventricle.*
3. KELLOCK, T. H., LYSTER, C. R. C., AND APPERBY, R. E. *A Case of Pneumonotomy for Foreign Body.*
4. MCGAVIN, L. *Colotomy for the Removal of a Hairpin Impacted in the Ascending Colon.*
5. TREADGOLD, C. H. *Myeloid Leukemia in a Child, with Blood Picture of So-called Megaloblastic Degeneration.*
6. *RIGGS, E. E. A. T. *On the Alleged Diagnostic Value of the Provocative Injection of Old Tuberculin in Suspected "Closed Pulmonary Tuberculosis."*

1. Cf. *British Medical Journal*, Jan. 11, 1913.

6. Riggs dealing with a small series of cases, 61, of closed pulmonary tuberculosis, concludes that the subcutaneous injection of tuberculin is of no value in diagnosis of this condition. [J. B. H.]

British Medical Journal.

January 11, 1913.

1. Keith, A. *An Address on the History and Nature of Certain Specimens Alleged to Have Been Obtained at the Post-mortem Examination of Napoleon the Great.*
2. *Martin, C. J. *The Horace Dobell Lecture on Insect Porters of Bacterial Infections. Lecture II.*
3. Gordon, W. *An Address on Medicine and Liberty.*
4. Maynard, E. F. *Salvarsan in Pernicious Anæmia.*

2. In this second Dobell Lecture, Martin considers in some detail the transmission of plague by fleas, the evidence that bacilli are found and multiply in the body of the flea, the mechanics of transmission to healthy animals, the proof of this, and the explanation of epidemics of plague on this basis. He next considers the transmission of certain diseases, notably typhus fever by lice, the relation of African relapsing fever to the tick, and that of anterior poliomyelitis to the stable fly, *Stomoxys Calcitrans*, and finally he considers bed bugs as porters of infection. The paper is full of interesting information in regard to this important subject. [J. B. H.]

Wiener Klinische Wochenschrift.

No. 2. January 10, 1913.

1. Kling, C. *The Etiology of Infant Paralysis.*
2. Pappenheim, A. *The Benzol Treatment of Leukæmia and Allied Blood Diseases.*
3. *Fischer, O., and Klausner, E. *A Communication on the Skin Reaction in Syphilis.*
4. Lawatschek, R. *The Prognosis of Tuberculosis in Nursing Babies.*
5. Orthner, F. *Case-Histories of Impalement Injuries.*
6. Kelling, G. *New Researches on the Production of Tumors by Means of Specific Foreign Embryonic Cells.*

3. The authors touch briefly on the work developing the Noguchi reaction, and state the conclusion that it is constant in tertiary syphilis, while the Wassermann reaction is constant in secondary syphilis. They then point out that the Noguchi reaction is also positive in a certain proportion of so-called parasyphilitic cases, notably in paralysis progressiva. They further state that this is true in 60% of the parasyphilitic cases. This per cent. is higher than is justified from a histological standpoint at present. Working with their preparation from a syphilitic lung, used subcutaneously, with a normal lung fluid control, in a mixed series of 118 cases, including 20 lues gummosa, 3 lues hereditaria tarda, 20 paralysis progressiva, and 37 lues I and II, they obtained positive reactions in the 23 cases of lues gummosa and lues hereditaria tarda and negative reactions in the 20 paralysis progressiva and the 37 lues I and II, as well as in the remaining miscellaneous cases. They therefore conclude that their method offers a definite limited chemical diagnosis of tertiary syphilis and lues hereditaria tarda. [F. S. K.]

Deutsches Archiv für Klinische Medizin.

November 22, 1912.

1. Schlecht, H., and Schwenker, G. *The Relation of Eosinophiles to Anaphylaxis.*
2. *Hausmann, T. *The Topographical Superficial and Deep Palpation of the Digestive Tract and Its Uses.*
3. *Hausmann, T., and Meinertz, J. *X-ray Studies Controlling the Position of the Stomach and Intestines as Mapped Out by Superficial and Deep Palpation.*
4. Bruns, O. *The Blood Circulation in an Atelectatic Lung.*
5. Kaufmann, R., and Popper, H. *Essay on the Study of Pulse Rhythm*
6. Fischler, F., and Graef, E. *The Influence of Liver Extirpation on the Respiratory Metabolism.*
7. Schott, E. *The Rise of Pressure in the Venous System on Exertion as a Measure of the Functional Power of the Human Heart.*
8. Ogawa, S. *The Absorption of Active Principles from Digitalis Leaves and Digitalis Preparations.*
9. Schultze, F. *Curable Acute Hepatitis.*
10. Lüdke, H., and Schüller, L. *Investigations on Nephrolysin.*
11. Scherber, P. *Tertian Malaria and Its Cure by Neosalvarsan.*

2. Hausmann describes in detail his method by means of palpation of different kinds to map out the different abdominal structures. In addition to light palpation and deep palpation he uses auscultatory percussion. He shows that the only satisfactory method for control of these observations is the Roentgen ray examination.

3. This paper by the author of the preceding in conjunction with Meinertz is well illustrated with schematic drawings and x-ray photographs. It supports very prettily the claims of Hausmann that his methods of diagnosing the positions of the different parts of the alimentary tract are accurate. He ends up with a plea for more study with the use of the hands, as they can be more readily supplied than the x-ray machine. [C. F., Jr.]

Revue de Chirurgie.

January, 1913.

1. Gross, G., and Barthélemy, M. *Sterilization by the Vapors of Formol in Surgical Practice.*
2. Duvergey, J. *Phlebitis in the Evolution of Fibromata of the Uterus.*
3. *Taddei, D. *Typhlo-Ureterostomy.*
4. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum.* (*To be continued.*)

3. As a result of his anatomic and experimental researches, Taddei of Florence describes the technic of his operation of typhlo-ureterostomy, after exclusion of the cecum and appendicostomy, in the treatment of vesical extrophy, and reports six cases, in five of which he obtained satisfactory results from this procedure in dogs. [R. M. G.]

Proceedings of the Royal Society of Medicine.

Vol. VI. No. 2. December, 1912.

1. Barton, G. A. H. *Death During Hedonal Infusion Anesthesia.*
2. Boyle, H. E. G., and Gask, G. E. *New Apparatus for the Intratracheal Insufflation of Ether.*
3. Shipway, F. E. *Apparatus for the Intratracheal Insufflation of Ether.*
4. Bunch, J. L. (a) *Congenital Syphilitic Infant Treated by Intravenous Injection of Neosalvarsan.* (b) *Molluscum Contagiosum.*
5. Carr, J. W. *Partial Hemiatrophy of the Face and Tongue.*
6. Norbury, L. E. C. *Spina Bifida with Ulcerated Meningo-Myelocele in a Child.*
7. Fairbank, H. A. T. *Ununited Fracture of Neck of Femur.*
8. Pritchard, E., and Drew, D. *Congenital Esophageal Stenosis.*
9. Pritchard, E. *Multiple Exostoses with Symmetrical Wasting of the Muscles of Both Upper Arms.*

10. BOYD, S. *Osteoma of the Forearm.*
11. SUTHERLAND, G. A. *Cerebral Non-Development.*
12. *CLOGG, H. S. *Malformation of the Rectum.*
13. WILLIAMSON, O. K. *Cerebellar Ataxia.*
14. ROLLESTON, J. D. *Fatal Case of Hemorrhage from Throat.*
15. LAPAGE, C. P. *Primary Carcinoma of the Liver in a Boy Aged Six Years.*
16. LANGMEAD, F. *Congenital Adenoma of the Liver.*
17. GUTHRIE, L. *Epidemic Catarrhal Jaundice.*
18. CASSIDY, M. A. *Rheumatoid Arthritis.*
19. TROTTER, W. *Advanced Carcinoma of Epiglottis.*
20. *WYNTER, W. E. *Acholuric Jaundice.*
21. MCGAVIN, L. (a) *Resection of Cecum, Appendix, Ileocecal Valve and Ten Inches of Ileum for Chronic Appendicitis.* (b) *Resection of Cecum, Ileocecal Valve, Appendix, and Ten Inches of Ileum for Obstruction Following an Entero-anastomosis; Subsequent Ventral Hernia Cured by Filigree Implantation.* (c) *Resection of Cecum, Ileocecal Calve, Appendix, and Five Inches of Ileum for Sarcoma; Anastomosis by Murphy's Button; Button Retained for Four Years.* (d) *Gastro-enterostomy for Hematemesis Followed by Ileus and Fecal Vomiting; Cecostomy; Subsequent Ventral Hernia; Cure by Implantation of Six Inches Filigree.*
22. BATTEN, F. E. *Celluloid Splints in the Treatment of Acute Poliomyelitis.*
23. HUGHES, E. C. *Congenital Syphilitic Disease of the Knee Joint.*
24. ARMOUR, D. *Chronic Circumscribed Inflammation of the Corpora Cavernosa.*
25. GALLOWAY, J. (a) *Tuberculous Peritonitis.* (b) *Sclerema Cutis (Adultorum).*
26. HUTCHISON, R. *Hirschsprung's Disease.*
27. ADAMSON, H. G. *Acne Urticaria.*
28. CASTELLANI, A. (a) *Further Researches on Trichomycosis Flava Rubra et Nigra of the Axillary Regions.* (b) *Note on Copra Itch.*
29. HIBBT, S. *Report on the Mite Causing the Copra Itch.*
30. CASTELLANI, A. *Note on the Etiology of Some Tropical Dermatomycoses (Tinea cruris, Tinea flava et nigra, Tinea imbricata).*
31. MACLEOD, J. M. H. *Generalized Macular Pigmentation of Trunk and Extremities.*
32. GRAY, A. M. H. *Dermatitis Herpetiformis.*
33. LITTLE, F. G. (a) *Erythema Multiforme of Unusual Type.* (b) *Epitheliomatous Growth on the Foot.*
34. MACCORMAC, H. *So-called "Acne Agminata of Crocker."*
35. MORRIS, M., AND DORE, S. E. *Extensive Case of Infective Angioma (Hutchison).*
36. SEQUEIRA, J. H. *Case Illustrating a Sequel to Alopecia Areata.*
37. ADAMSON, H. G. *A Discussion on Erythema Multiforme.*
38. *JELLINEK, S. *Electric Accidents from the Clinical and Forensic Standpoint.*
39. EWART, R. J. *The Influence of Parental and Grandparental Age at Birth of Offspring on Their Susceptibility to the Zymotic Diseases.*
40. CROOKSHANK, F. G. *Some Recent Theories of Tuberculosis and Their Possible Significance.*
41. *OSLER, W. (a) *President's Opening Remarks.* (b) *A Down Survey of Manuscript of William Petty.*
42. CRAWFURD, R. *Contributions from the History of Medicine to the Problem of the Transmission of Typhus.*
43. POWER, D'A. *Notes on Early Portraits of John Bannister, of William Harvey, and the Barber-Surgeons' Visceral Lecture in 1581.*
44. ATKINSON, J. *Mikulicz's Disease.*
45. TILLEY, H. *Fibroma of the Nasopharynx.*
46. O'MALLEY, J. F. *Two Cases of Bilateral Edema of Nasal Septum.*
47. MCKENZIE, D. (a) *Denker's Operation for Maxillary Antrum Suppuration.* (b) *Tuberculosis of the Tonsils and Cervical Lymphatic Glands.*
48. DONELAN, J. *A Simple Tonsillotome.*
49. MUECKE, F. (a) *Epithelioma of the Soft Palate.* (b) *Double Abductor Spasm, Caused by Vocal Overstrain.*
50. TWEEDIE, A. R. (a) *Tonsils and Cervical Glands Removed Post Mortem.* (b) *Cartilaginous and Fibrous Growth Removed from a Girl.*
51. THOMSON, STC. (a) *Epithelioma of the Larynx.* (b) *Two Cases of Radical Frontal Sinus Operation (Killian).*
52. TOD, H. (a) *Malignant Disease of Left Sphenoidal Region; Proptosis with Blindness of Eye on Same Side; Enlarged Cervical Glands on Both Sides.* (b) *Marked Infiltration of Ary-epiglottic Fold and Ventricular Region of Right Side of Larynx, Together with Partial Fixation of Vocal Cord.* (c) *Tertiary Syphilis and Ulceration of Larynx, Causing Laryngeal Obstruction, Treated by Neosalvarsan.*
53. DAVIS, H. J. (a) *Fascial Mucous Tubercles, Hunterian Sore on the Back of the Neck.* (b) *Enlarged Tonsils, Lympho-sarcoma or Lymphadenoma.* (c) *Skiagram Showing a Butcher's Wire Skewer in the Right Secondary Bronchus.* (d) *Skiagram Showing a Penny Coin Impacted in the Esophagus.* (e) *Sluder's Guillotine.*
54. WATSON-WILLIAMS, P. *Case of Panstinusitis.*
55. HOPE, C. W. M. *Infiltration of Uvulva, Epiglottis and Arytenoids.*
56. HORSFORD, C. *Atrophic Rhinitis.*
57. PHILLIPS, S. *A Fatal Case of Widespread Ulceration Limited to the Small Intestine.*
58. LEA, C. E. *Four Cases of Auricular Tachycardia.*
59. THOMSON, H. C. *Pituitary Tumor.*
60. TAYLOR, J. *Peroneal Atrophy.*
61. GUTHRIE, L. *Congenital Cerebellar Ataxia.*
62. FEARNSIDES, F. G. (a) *Nystagmoid Movements of Palate and Lids; Lateral and Rotatory Nystagmus; Cerebellar Incoördination.* (b) *Tetanus; Chloretone Poisoning; Recovery, Followed by Polyneuritis.*
63. STEWART, P. *Family Myoclonus.*
64. BUZZARD, F. F. (a) *An Obscure Case of Athetosis with Abolition of Tendon Reflexes.* (b) *Post-encephalatic Diplegia with Involuntary Movements.*
65. BATTEN, F. E. *Atrophy of Distal Muscles in All Four Extremities.*
66. COLLIER, J. (a) *Unilateral Tremor Resembling That of Paralysis Agitans in a Child.* (b) *Two Members in Which Visual Defects and Loss of Knee-jerk Have Occurred During Three Generations.*
67. ELLIOTT, T. R. *Unilateral Fredreich's Disease.*
68. HARRIS, W., AND BANKART, A. S. B. *Spinal Tumor and Scoliosis.*
69. WALSHE, F. M. R. *Jacksonian Attacks.*
70. GREEVES, R. A. *Partial Third Nerve Paralysis with Rhythmic Movements of the Pupil.*
71. MAXWELL, R. D. *Puerperal Eclampsia Treated by Cæsarean Section.*
72. ANDREWS, H. R. (a) *Simultaneous Intra-uterine and Extra-uterine Pregnancy with Probable "Internal Wandering" of the Ovum.* (b) *A Small Ovarian Terratoma Containing Brain and Well-formed Intestine.*
73. ROBERTS, C. H. *Ugent Cæsarean Section for Prolapse of the Cord in a Case of Contracted Pelvis.*
74. WYATT, J. M. *LeFort's Operation.*
75. MUMMERY, J. H. *The Nerves of the Dentine.*
76. BADCOCK, J. H. *Orthodontics in Modern Practice.*
77. NETTLESHIP, E. *Sarcoma of the Choroid of Unusual Chronicity.*
78. NETTLESHIP, E., AND THOMPSON, A. H. *A Pedigree of Leber's Disease.*
79. ORMOND, A. W. (a) *Retino-choroiditis Juxta papillaris.* (b) *Pemphigus of the Conjunctiva.*

80. Fisher, J. H. *Semilunar (Subhyaloid) Retinal Hemorrhages.*
81. *Greeves, R. A. *Partial Oculomotor Paralysis.*
82. Parsons, J. H. *"Mooren's" Ulcer Associated with Ulceration of the Sclerotic.*
83. Paton, L. *Modification of Herbert's Flap Operation for Chronic Glaucoma.*
84. *Lake, R., and Penny, A. F. *Two Cases of Vertigo.*
85. Lake, R. *Aberrant Carotids*
86. Jones, H. E. *A Method of Making a Periosteomeatal Flap in the Radical and Modified Radical Mastoid Operations.*
87. West, C. E. (a) *Thrombosis of Jugular Bulb.* (b) *Injury to Internal Carotid Artery.*
88. Davis, H. J. (a) *Cerebellar Hernia Following Cerebellar Abscess.* (b) *Labyrinthine Vertigo.* (c) *Malignant Polypus of the Ear.*
89. McKenzie, D. (a) *Acute Middle-ear Suppuration.* (b) *Lens for Use in Mastoid Operations.*
90. Kisch, H. A. *Operation for Chronic Adhesive Catarrh of the Middle Ear (Tympanoplasty).*
91. Peters, E. A. *Chronic Diffuse Labyrinthitis.*
92. Cocke, R. S. *Osteoma of the Mastoid.*
93. Bastian, H. C. *Further Experiments Concerning the Origin of Life.*
94. McDonagh, J. E. R., and Klein, B. G. *Vaccine Treatment of Gonorrhœa.*
95. Host, E. C., and Penfold, W. J. *Further Studies in Experimental Fever.*
96. Gould, A. P., et al. *A Discussion on Sarcomata and Myelomata of the Long Bones.*
97. Cow, D. (a) *The Action of Pilocarpine and Atropine on the Urinary Secretion.* (b) *The Action of a Tissue Extract in the Production of Diuresis.*

12. Clogg reports a case of rectal malformation in which there was complete absence of the post-allantoic gut and the proctodeum. The case was successfully treated by operation.

20. Wynter reports an unusual case of acholuric jaundice due to hemolytic anemia.

38. Jellinek of Vienna presents an interesting and valuable study of electric accidents, illustrated by diagrams and cases.

41. Osler records an interesting item about Sir William Petty, a seventeenth century professor of anatomy at Oxford.

81. Greeves reports a case of partial oculomotor paralysis with synchronous clonic contractions of muscles supplied by the third cranial nerve.

84. The authors report two cases of vertigo in which the blood-pressure was very low and reactionary vertigo was excessive after rotation.

[R. M. G.]

Obituary.

WILLIAM HOWSHIP DICKINSON, M.D., F.R.C.P.

Dr. William Howship Dickinson, who died on Jan. 9 at Tintagel, Cornwall, England, was born at Brighton in 1832. He received his academic education at Gonville and Caius College, Cambridge, of which he was subsequently made an honorary fellow. In 1851 he entered St. George's Hospital Medical School, London, where Mr. Henry Gray was then lecturer on anatomy. Dickinson became a member of the Royal College of Physicians of London in 1858. In 1859 he received the degree of M.B., and in 1861 was appointed assistant physician to the Hospital for Sick Children, Great Ormond Street, London. He obtained the degree of M.D. in 1862, and in 1865 was elected a Fellow of the Royal College of Physicians. In May, 1866, he was appointed assistant physician to St. George's Hospital. He became physician to the Hospital for Sick Children in 1869 and to St. George's in 1874. In 1876 he delivered the Croonian lectures before the Royal College of Physicians. In 1884 he was made consulting physician to the Hospital for Sick Children. In 1888 he delivered the Lumleian lectures and in 1891 the Harveian Oration.

Dr. Dickinson was an all-round physician, and his abundant writings include nearly every branch of medicine. He was particularly interested in pathology, and was early made a member of the Pathological Society of London and in 1889 to 90 its president. He was also president of the Royal Medical and Chirurgical Society, and a Fellow of the New York Academy of Medicine. In 1891 he was president of the section of pathology and bacteriology at the annual meeting of the British Medical Association at Bournemouth, and in 1894 president of the section of diseases of children at the meeting at Bristol. In the latter year he gave up his extensive practise, was made a consulting physician at St. George's Hospital, and retired to his home in Tintagel, where the remainder of his life was spent. He is survived by four daughters and one son.

Dr. Dickinson was a man of remarkable individuality, great originality of thought, and intensity of conviction. He was stimulative as a teacher, and though shy and of abrupt manner, was in reality genial, well read, full of sympathy, and gifted with an exquisite sense of humor. He was one of the last of an older group of distinguished medical practitioners of London.

GEORGE ALEXANDER GIBSON, M.D., D.Sc., LL.D.

On January 18, 1913, there died in Edinburgh Dr. George Alexander Gibson. Dr. Gibson came to Boston at the time of the inauguration of President Lowell as a delegate to Harvard University from St. Andrews and the University of Edinburgh. On this occasion and during other visits many of the Boston profession had an opportunity of knowing him and of beginning a friendship which was most delightful

Dr. Gibson was probably the first physician in Scotland. Born in Perthshire, January 27, 1854, educated in Edinburgh where he received the Doctorate of Medicine and the Doctorate of Science, his activities were centered about the Royal Infirmary, to which he was Physician, and in which he conducted teaching under the auspices of the School of Medicine of the Royal Colleges of Edinburgh, performing a very active part in that form of extramural teaching which has been a large factor in making Edinburgh a great center for medical students over

a period of many years. His own particular field of investigation had been cardio-vascular disturbances, and in addition to numerous papers on these subjects, from his pen came one of the best books in the English language on heart disease.

In many ways he was honored by his colleagues. Dublin University conferred on him the Honorary Degree of M.D.; Harvard that of D.Sc.; St. Andrews and McGill Universities that of LL.D. He was a member of the Governing Board of St. Andrews University and served for a considerable period of time on a Council which regulates medical teaching and medical registration in Great Britain.

A most genial man of wide interests, he proved an acceptable member of many circles of friends. Vigorous in health, he was keenly interested in out-of-door sports. Following a spring of great activity, last summer his health broke down and he was a sufferer from cardio-vascular disturbances during the past six months. He seemed to convalesce slowly, and on the day before his death appeared to be rather better than usual, and particularly bright and cheerful. During the night of January the 18th he died in his sleep without pain or discomfort. Many of his American colleagues will greatly miss his cordial hospitality and enthusiasm for medicine when they visit Edinburgh or attend meetings of the many medical societies in Great Britain of which he was a member.

THE EARL OF CRAWFORD.

JAMES LUDOVIC LINDSAY, twenty-sixth Earl of Crawford, head of the house of Lindsay, and premier earl of Scotland, who died recently in London, was born at St. Germain-en-Laye, France on July 28, 1847. He was for many years president of the British Royal Astronomical Society and trustee of the British Museum, but was distinguished not only as an astronomer, a statesman, and an explorer, but also for his interest in medical science. During the last decade of the nineteenth century, the British Medical Association awarded him its gold medal for his eminent services in preventing the entrance of Asiatic cholera infection into England. He was especially interested in the study of cardiac disease, and was one of the earliest to introduce the use of the sphygmograph to record the heart-action.

Miscellany.

RECENT DEATHS.

DR. HENRY GOODWIN MACKAYE, who died on Feb. 2, at Newport, R. I., was born in New York in March, 1856. He received the degree of A.B. from Harvard College in 1878, and that of M.D. in 1885 from the Harvard Medical School. In 1886 he settled at Newport, where he continued active in the practise of his profession until his death. He was on the staff of the Newport Hospital, and was a member of the Newport Medical Society. He is survived by his widow and by three daughters.

SOCIETY NOTICES.

MT. SINAI HOSPITAL.—Clinical meeting at Sprague Hall, Boston Medical Library, Monday, February 17, 1913, at 8.15 p. m.

Dr. Walter M. Brickner, Adjunct Surgeon, Mt. Sinai Hospital, N. Y., will read a paper on "The Differential Diagnosis of Syphilis, Sarcoma, Carcinoma, Cyst and Osteomyelitis of the Long Bones."

Discussion by Drs. E. A. Codman, C. L. Scudder, F. J. Cotton, and J. D. Adams.

IRVING SOBOTKY, M.D., *Secretary*.
366 Commonwealth Avenue.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society February 20, 1913, at 7.30 p. m., in the Kensington Building. Paper: "Medicine in Panama," Dr. Helen I. McGillicuddy.

Refreshments after the meeting.

MARGARET L. NOYES, *Secretary*.

BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Monday evening, Feb. 17, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

The following papers will be presented:

Dr. E. E. Tyzzer: "Factors in the Production and Growth of Metastases of Tumors." (20 minutes.)

Dr. W. B. Cannon and Dr. Henry Lyman: "The Depressor Effect of Adrenalin." (20 minutes.)

Dr. J. H. Pratt: "Pancreatic Transplantations in the Spleen." (With lantern slides.) (15 minutes.)

Dr. Howard T. Karsner and Dr. A. E. Meyers: "Giant Cell Pneumonia." (15 minutes.)

For prompt publication, abstracts of these communications should be ready at the close of the meeting.

CLEAVELAND FLOYD, M.D., *Secretary*.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 1, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	7	2
Chicago	—	—	Waltham	7	1
Philadelphia	—	—	Brookline	9	1
St. Louis	—	—	Chicopee	—	—
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	5	2
Buffalo	—	—	North Adams	8	2
Pittsburgh	—	—	Northampton	8	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	3	2
Boston	252	87	Westfield	7	3
Worcester	37	6	Peabody	—	—
Fall River	45	21	Melrose	3	—
Lowell	30	13	Woburn	5	1
Cambridge	38	13	Newburyport	4	—
New Bedford	28	16	Gardner	5	1
Lynn	21	7	Marlboro	—	—
Springfield	39	8	Clinton	6	3
Lawrence	—	—	Milford	—	—
Somerville	23	5	Adams	—	—
Holyoke	17	5	Framingham	—	—
Brockton	9	1	Weymouth	—	—
Malden	14	4	Watertown	5	1
Haverhill	19	6	Southbridge	1	—
Salem	19	8	Plymouth	1	—
Newton	12	4	Webster	—	—
Pittsburg	19	6	Methuen	—	—
Taunton	9	3	Wakefield	—	—
Everett	7	2	Arlington	3	—
Quincy	—	—	Greenfield	3	1
Chelsea	9	2	Winthrop	—	—

Original Articles.

MEDICAL EDUCATION AND THE HARVARD MEDICAL SCHOOL.*

BY E. H. BRADFORD, M.D., BOSTON,

Dean of the Harvard Medical School.

For centuries there has been teaching in the study of medicine in one of two ways: following methods which may be defined as direct teaching, and the academic method.

By the first of these the master of his art trains his pupil as in the apprentice system. This method is necessarily employed in a new country, sparsely settled and remote from established educational centers. The practice of medicine was taught in this way in the American colonies, and produced in this country many physicians of high character, whom we justly regard as the Fathers of American Medicine. A few of them enjoyed educational advantages in courses taken in Edinburgh, but they were in reality home products, nursing perhaps in their minds ideals of what the Science of Medicine should be, but acquiring knowledge in the rude school of experience, guided at first in the office of the busy practitioners of their neighborhood.

The passer today on the busiest of Boston streets, where formerly stood the famous Old Corner Book Store, can exercise his imagination in picturing to his mind the young medical assistants of the great Dr. Warren of the early days, compounding medicines, bandaging wounds, setting bones and following the good doctor with whom they "read medicine" in his daily busy rounds.

The custom of medical students entering the office of leading practitioners prevailed in some parts of this country well into the latter part of the past century. Physicians today are in active practice whose first step in the study of medicine was to register with a prominent physician, their "preceptor," paying in some instances a fee for the privilege.

The advantage of the method of direct teaching lies in the fact that it is direct, and that it attempts to meet existing medical needs. Fanciful theories and fine spun speculations had little chance of development among doctors whose work consisted in relieving the suffering of a hard working people. Human nature was observed at close range by men who were trained to the accurate observation of symptoms in their relation to the development of disorders and the natural course of diseases.

The value of the method of direct teaching is seen today in many places. At Rochester, Minnesota, Dr. Mayo and his brother are showing to the world an admirable example of direct teaching. Those trained by them can begin their work as masters of their art. Young physicians who were fortunate enough to have assisted the late Dr. Maurice Richardson in the many years of his surgical activity throughout New England, were trained in the best of schools of direct teaching in surgery; this added to their medical school studies and hospital work made them proficients in their calling.

The apprentice system still survives in a most valuable form in hospital training of assistants, and this should be utilized as a definite part of the educational plan of every properly organized medical school.

In England, early the land of individual effort, medical education began with direct teaching. The universities, until comparatively recently, treated the art of medicine as affording few subjects worthy of the study of a cultivated mind. The Royal College of Surgeons was an off-shoot of the Guild of Barber Surgeons. Although the university later claimed the right to grant medical degrees, the English medical schools were to a greater or lesser degree proprietary schools, outgrowths of the hospital.

The apprentice system in medicine, however, fails from the very complexity of its undertakings. No one would think of attempting to teach all of medicine today; no man can even know one branch of medical science exhaustively. The great practitioners, as their fields of usefulness enlarged, gave up undertaking to teach medical truths to individual students; group teaching followed, often conducted by the less busy men, would-be masters for personal advertisement or gain, and the proprietary school developed with its commercialism and superficiality. A condition of affairs grew up manifestly injurious, and the medical world finally turned to the universities in the hope that they might establish higher ideals, more thorough and broader methods. The multiplication of cheap medical schools became a national disgrace and the horde of untrained medical doctors a calamity.

In the dawn of civilization the development of the science and art of healing can be traced as coming from the Chaldean, Egyptian and Greek temples and shrines, to which sufferers were brought in the hope of divine aid. The priests and attendants who accepted the offerings performed the rites, watched the sick and the dying, and those who were most observant and humane among them studied the effect of such measures of relief as were attempted. The code of Hammurabi, the Egyptian papyri, the Book of Leviticus show in many instances the accuracy of observation and the soundness of reasoning of these primitive teachers. But the legacy from the Greek temples and the philosophy of Aristotle, who is supposed to have had some knowledge of medicine, with the writings of Galen and Hippocrates, are of a much more lasting value. For centuries all medical teaching had for its foundation principles, not direct observation, but instead a knowledge of the recorded theories and opinions of the ancients and

* Presented at a meeting on Dec. 7, 1912, of the Aesculapian Club of Boston.

the later teachers in the few great schools of medicine. Without the sanction of such authorities no changes in medicine and practice could be permitted. Even when Harvey ventured to publish his great discovery, the result of careful observation, he prefaced his statement with a disclaimer of any attempt on his part to subvert the doctrines of the early great teachers of medicine.

It is perhaps difficult for us today to realize the benefit which in the middle ages must have come to the world from the great schools of medicine in Greece, Alexandria, Italy, and France. Our knowledge and experience today enable us to comprehend that, like the dogmatism and bigotry of theology, crushing out the development of true religious thought, the medical dogmatic delayed progress in medical studies for centuries. But we forget that it was in these schools that true zeal in the study of medicine was promoted, and the foundation of a science laid which has become so important in human affairs today. Even a superficial acquaintance with the medicine of China, Thibet and Japan of forty years ago, countries uninfluenced by the teaching of the great European schools of medicine, is sufficient to suggest to us the enormous debt we owe to the academic tradition in the study of medicine.

But the academic tradition may degenerate into bigotry and pedantry; the zeal of the scholar may crush; the lamp of learning may smoke and need trimming. History teaches that the surgeons of the black robe looked down upon Ambrose Paré. Molière has shown us in his Dr. Diaphoirus a type which we know must have been true to life. Pedagogic authority ruled, and in Germany even as late as the middle of the past century, all instruction in medicine was given in Latin. It is not strange that the profession of medicine was often ridiculed and mistrusted, for its dogmatic theorizing, unchecked by precision in thought and observation.

As a reaction against this pedantry the medical schools of Continental Europe finally sought academic freedom, and demanded systematic direct teaching in clinic and laboratory.

As every well-organized medical school today attempts to combine the advantages of the direct method of teaching with those coming from the high academic standards of a university in its curriculum, degrees and honors, those interested in the welfare of the Harvard Medical School can justly ask that a statement be made to them describing the present condition of the Harvard Medical School, especially in its relation to the important question of medical education. The members of the Aesculapian Club, which has always been active in its aid to the Harvard Medical School, unquestionably deserve to be kept in close touch with its affairs.

Laboratory research in a medical school is useful, not only in advancing medical science, but also as a stimulus preventing the teaching force from becoming mechanical. Laboratories should be manned by well-trained, zealous observers, producing work of value, the test of the value of such laboratories being found in their output. Judged by every standard, the laboratories of the Harvard Medical School will be found to be in a most satisfactory condition. The amount of the work is large, and though much of it is of a character to be appreciated only by experts, some of the more recent publications have aroused much general interest. The fact that the "stable fly" is the host in poliomyelitis, demonstrated by Dr. Rosenau, is one of great value, as is also the pathological relation of the germ of pertussis to the cilia of the trachea and bronchi, recently shown by Dr. Mallory. The former points out a new path for an attempt to suppress poliomyelitis, and the latter to the direction of therapeutic measures for the cure of an obstinate and distressing malady. Both are likely to prove of the greatest value in preventive medicine and in the treatment of disease.

Of great importance also is the recent work of Dr. Folin, whose new methods for clinical quantitative determination of nitrogen waste products in small amounts of blood give to the clinician much needed precision in the study and treatment of nutritional disorders. The dietitian has now, to guide him, a test as precise as the thermometer in the observation of fever, and even of more importance in regulating treatment. The recent research work of Dr. Wolbach in the sleeping sickness of Central Africa deserves mention, not only for itself, but also as an illustration of the activities of the School.

From this brief statement of a few only of the more recent publications of its laboratories, it is evident that the Harvard Medical School can be justly proud of its laboratory research workers, who, it may be added, are also excellent and active teachers, both for undergraduate and for research workers.

Criticism of the School has been frequently heard, made chiefly by the older graduates, to the effect that too much time is given to laboratory teaching. Such an opinion, however, will not bear the test of close examination of the curriculum, in view of the great and growing demand in the modern practice of medicine for thorough familiarity with methods in bacteriology, pathology, and chemistry, a familiarity only to be acquired by direct instruction and practical work in well-directed laboratories.

But it is not only in laboratories that teaching and research should be conducted. Medicine is to be taught in hospital clinics, where research is possible through the records of carefully trained observers. The earlier physicians in this country necessarily studied their patients in their daily rounds of country practice, but today the large hospitals form the great schools in medicine. An understanding of this fact leads to a better comprehension of the true function of a great public hospital. Originally a hospital was a place of shelter for the needy;

later it became an institution where the homeless sick were cared for. Today the function of a hospital is a much more important one. It should serve also as a means of protecting a community from disease, educating the inhabitants in the rational care of disease.

In this purpose there should be a close alliance between the hospital and a well equipped medical school. Few hospitals keep in their employ an expert epidemiological investigator and experimenter, but the advice of such an expert would be at once imperative if an unusual disease appears. The medical school also needs the hospital. The expert who can check or prevent the ravages of a disease in a guinea-pig should also have the opportunity to organize the successful application of the best methods in the cure of man.

The need of mutual coöperation between the doctor and the scientist is recognized generally; in some places the medical school has its hospital, and in others the hospital its medical school. In Europe the government owns and directs both, but in our community, as the direction and administration of a medical school differs from that of a hospital, requiring different talents, an economy of effort is secured through the plan of an agreement between school and hospital, based upon an understanding and recognition of their respective mutual interests.

Under such a plan the medical school does not "take over" the hospital, nor does it interfere with any hospital rules or arrangements. The head of a hospital department should be engaged so that he can give the greater part of his time and energy to clinical study not only of his cases but of disease; he should also be aided by adequately paid assistants, who in the early years of practice desire to obtain the advantages of hospital work. Such hospital chiefs perform better hospital service if they are trained teachers and under the direction of a medical faculty which stimulates and demands active investigation of disease and careful study of cases under the criticism of well trained student followers and of colleagues, fellow teachers in a university zealous for high standards.

The connection of the Medical School with Harvard University is of advantage to the former in strengthening its organization as well as in adding to it a valuable academic spirit. It has also aided the School in making satisfactory arrangements with hospital authorities.

Hospitals owned and administered by medical schools tax the resources and administrative abilities of the school. Local hospitals have, as a rule, only a local reputation and command for their staff local talent. A satisfactory combination is made when the medical school is relieved of the responsibility of administering to the needs of each patient, while the hospital can secure a wide field in the selection of its medical and surgical staff if it offers the added distinction of a prominent position in the medical faculty of Harvard University. From alliances and agreements of this character, the School is now able to offer to its students excellent opportunities for study (clinical as well as laboratory), and for a curriculum meeting all possible requirements for undergraduate and postgraduate work.

Suggestions as to change in the present requirements for admission to the Harvard Medical School have been freely made by two different groups of critics of the School. One of these groups, loyally interested in maintaining broad and high standards in the academic department of Harvard University, believes that it is the duty of our larger universities to preserve at all cost the study of humanities and that culture which is above the utilitarianism, already it is thought too dominant in our land. These thinkers fear that the special schools of the University, training for bread-winning occupations, will fall away from the high standards of philosophic thought which should animate all students of a great university.

It is not difficult to understand these arguments. The Harvard Law School, one of the best in the English speaking world, does not regard merely the educational needs of a young aspirant for a cheap legal practice; it seeks to train in the spirit of the jurist. The Theological School, in the same way, does not attempt to teach those desiring to learn only arguments supporting a dogma, but those searching for truth as far as the human mind can reach in theological thought. It is unmindful of the numbers of its pupils and seeks to provide for the elect in thought. The Schools of Science and Business both wish to devote their resources to the training of those who will be fitted for the larger undertakings in engineering. Why should not the Medical School devote its energies and resources chiefly to the training of the future great leaders in medical sciences?

Prompted by this proper desire for high standards and recognizing the need in America of improvement in medical education, the Harvard medical faculty decided to establish the Bachelor's Degree as a preliminary requirement in the study of medicine.

Objections to this have come both from those who regard the standard as not furnishing sufficient preliminary training and also from those who consider this standard of entrance unnecessary and absurd.

To the first group of these critics it would seem advisable that the A.B. degree, often obtained only through energetic coaching, should be reinforced by a year of training in chemistry, physics and biology. Otherwise, many of the holders of simple A.B. degrees will, from their imperfect training, be incapable of receiving the benefit from instruction, and remain a drag upon the classes of beginning medical students already well trained in these branches. Admitting the justice of this demand, the admission standards of the Harvard Medical School now

require in addition to the A.B. degree, evidence of a practical knowledge in organic chemistry. Are courses in physics and biology also needed as a preliminary training?

To another group of critics it appears that the present admission requirements of the Harvard Medical School keep out from the School a large number of excellent men who, mentally thoroughly qualified for the practice of medicine and capable of doing creditable work, are deprived of the advantages of instruction at the Harvard Medical School, and obliged to study elsewhere, where less strict preliminary educational standards are required.

The justice of the criticisms urged is readily admitted, but it is also evident that it is impossible to devise requirements for medical school education which will be entirely satisfactory when so divergent views are held. Since the establishment of an A.B. requirement by a few of the prominent medical schools of the country several years ago, the cause of the improvement of medical education in America has been energetically and ably espoused by the many interested in the subject in different parts of the country. The Carnegie Foundation, in its reports, also has attempted to show the proper requirements of a thorough medical education, and it is now possible to examine the problem with a better knowledge of the subject and of the situation confronting medical educators in this country.

Those who fear that the Medical School will ever place its standards lower than is befitting an important faculty of Harvard University are not familiar with the history of the School and its relation to the development of medical science in our community. In no part of the University is the record of scholarly zeal more manifest. The great collection of the Warren Museum embodies a century of enthusiastic devotion, and the great hall may well seem a shrine of a temple of the healing art watched over by the memories of remarkable men who devoted their lives to the relief of the sufferings of their fellowmen. It is difficult to escape the influence of such a tradition. There may be a danger from an excess of conservation, but no fear that the legacy of high ideals will be forgotten.

It should not be overlooked that medical education must be thorough. The law student in the early days of his practice can consult authorities before acting, but the young medical practitioner needs at times to meet emergencies which demand immediate action, with the responsibility of life and death, and for this the medical educators of today recognize that the medical student needs, for the best training, a year of hospital service with its guided experience.

The Harvard Medical School will soon be in a position to offer valuable hospital work to every graduate and to urge his compliance with a requirement of such service. If such an arrangement is made, the School will be able to offer a complete and excellent system of medical education, but with the disadvantage of adding another year to the period already too long before bread-winning in the profession is possible to the medical student.

That an A.B. graduate of our University at the age of 21 to 22 is to be required to devote from five to six years to medical studies before he begins his life work is a tax which may tend to turn a man of energy to other fields of activity. Would not the law, theologic and scientific schools be depleted if such a prohibitive requirement were presented to every prospective student in the respective fields of activity? Is it just that the study of medicine, necessarily most exacting, should be unduly handicapped? But how the time tax in medical education is to be reduced is a serious question, difficult of solution.

To any one who has enjoyed the privilege of four years' study in one of our universities, there is no doubt of the advantages derived from these years. While it is difficult to define what is acquired, certainly more is learned than the mere proficiency to pass the examinations for a bachelor's degree. The saying of the famous President Kirkland, that it was a benefit to a student to rub his shoulders for four years against the walls of University Hall, expresses a truth, even if with exaggeration. But although such educational advantages are exceedingly desirable, two added academic years demand an additional pecuniary tax, often met with great difficulty. If this is required of all medical students, the profession of medicine will be deprived of the talent of many young men of energy and ambition. If this requirement is maintained only by medical schools presenting the best educational opportunities, many will, if desiring medical study, be forced to enter less well equipped schools. Without doubt, our best medical schools should admit any young man of ability, provided he is mentally sufficiently trained to be taught in the curriculum. The School must have admission requirements. The dullards should be strained out and the men of energetic promise passed. It is to be hoped that the recent changes in the examination system introduced in the Harvard Medical School will serve to help in the matter of preliminary education and admission requirements. This new system of medicine has already been fully described and further details are unnecessary here. In brief it may be said that the examinations are designed to abolish what has been termed the cellular system, by which all that is required of a student is that he shall pass the examination in each branch which satisfies the instructor in that branch. Under the new system he is not merely a proficient in note taking or in the study of notes taken by others of the *ipsissima verba* of instructors, men who are often master only by title. They may be teachers without being scientists, or scientists and not teachers, or even merely pedants. Un-

der the new system it is hoped a better test of the student's actual knowledge will be established and more elasticity be permitted in our entrance requirements than before the improved system of examinations was introduced. It will be extremely difficult for an improperly trained student or one with an inadequate amount of mental breadth to be passed by his instructors in every branch and then also in a searching general examination of the whole field of medical science and practice, conducted by a selected board of educators.

The problems confronting the medical educator today are many and difficult, but they are carefully studied. Medical schools of great excellence are established in many of our educational centers, and thoughtful and energetic educators are striving to direct public opinion that the demand for a high standard in medical education will in time be imperative. The purpose of those entrusted with the direction of the Harvard Medical School should be definite; to utilize its resources so that it becomes foremost among equals, and that the Harvard doctor's degree in Medicine, as in Arts, Philosophy, Theology, should be the hall mark of sterling worth. Associations like the Aesculapian Club, and meetings like the one this evening warrant the belief that our Medical School enjoys the loyal support of all its graduates and of the well wishes of Harvard University.

THE PROBLEM OF GRADUATE MEDICAL INSTRUCTION.*

BY HORACE D. ARNOLD, M.D., BOSTON,

Dean of the Graduate School of Medicine of Harvard University.

THE essential basis for the existence of graduate medical instruction is the wide extent of medical knowledge. No single mind can master this whole subject, in all its essential details, in a life-time. In the four years of the medical course, no student, however brilliant, however well prepared, however assiduous, can attain more than a broad foundation in the essentials of medical science. On this foundation further experience and study will enable him to erect a structure,—his own personal attainments in the realm of medicine. Every live man erects such a structure. It may cover a large or a small part of the foundation; it may be high or low, imposing or modest; it may be well or poorly constructed; it may be serviceable for the public or the reverse;—but it is never a complete structure and it can always be improved. The function of the graduate school is to help physicians to improve their medical knowledge and to enable them to attain better results than they can by their own unaided efforts.

The extent to which the graduate medical school may carry its advanced instruction is limited only by its equipment and the ability of its teachers. Even the most experienced physicians and the most highly trained scientists may profit by such opportunities, for no one has mastered so much of medical knowledge that there are not many others capable of teaching him many useful things.

From this point of view it is clear that instruction in the methods of research and opportunities for original investigation are not only legitimate parts of graduate medical teaching, but that the graduate medical school which fails to develop this part of its work falls far short of our idea of what such an institution should be. Abundant resources and the highest type of teachers are needed for success in this direction, and the graduate school, even more than the undergraduate medical school, needs the resources and the standards of a strong university back of it. It should properly be a department of a university.

There is, then, no limit to the legitimate aspirations of a graduate medical school in the matter of advanced instruction. Where should the limit be established in the other direction? What should be the minimum requirements for admission? The answer will depend upon our conception of what the graduate school should attempt.

If, as it should be, the graduate medical school is a department of a university, the question at once arises whether it should not establish high admission requirements, commensurate with the requirements for admission to other graduate departments. From an academic point of view this would seem to be the logical position for a university to take. Having established a standard of under-graduate medical instruction in the course for the degree of M.D., the university would naturally adopt this standard, or its equivalent, as a requirement for admission to a school giving still more advanced training. The maintenance of university standards would seem, at first sight, to demand this solution of the problem; yet Harvard University, which is very solicitous about maintaining high standards, is not establishing any such requirements for admission to its Graduate School of Medicine.

This apparent departure from its ordinary standards demands an explanation, and the explanation is not to be found in any laxity of standards, for such laxity does not exist. The explanation lies first in the fact that a course in the graduate medical school does not at present lead to any degree, and secondly in the recognition of a public duty. If a higher medical degree than the M.D. were to be granted for work in the Graduate School of Medicine, Harvard or any university, should require a preliminary training that is equivalent to its requirements for the M.D. degree, but the problem of such higher or special degrees in medicine is as yet unsettled, and Harvard has wisely postponed the consideration of this important

* Read before the Aesculapian Club of Boston on Dec. 7, 1912.

problem. High admission requirements are, therefore, not demanded in order to maintain definite standards.

Such being the case, the university may organize its graduate medical school so as to best meet the needs of the medical profession and to be of the greatest benefit to the public. In this connection it may be noted that our universities have awakened to a new sense of public duty. Many of them have co-operated with public authorities in the solution of problems affecting the public welfare, and many, even of our highest universities, are showing great liberality in offering instruction to those who may profit by it, irrespective of fixed requirements as to preliminary education. Perhaps the most marked instance of this is the instruction, more or less freely open to the public, in the form of "Extension Courses."

Consideration for the public welfare is, therefore, taken as the deciding factor in establishing admission requirements to a graduate medical school. The cardinal principle is that any person who is legally qualified to practice medicine should be given an opportunity to improve his medical knowledge. And the question may be asked: Who needs instruction more than the more poorly prepared practitioners of medicine who are allowed to treat the public?

The question of admission to a graduate medical school is therefore one of practical needs rather than of ideals. The low standards of medical education in America and the loose registration laws in many of the states are responsible for the fact that there are many poorly prepared practitioners of medicine who have legally as much right to practise on the public as the best trained physicians. Many of these men either were not able to attend the best medical schools or did not appreciate the importance of high standards of medicial education. Many are conscientious in their desire to improve their medical knowledge that they may be able to serve the public better. Surely such men should be encouraged and no greater service can be done the public than to give such men the best opportunities for improvement. So it comes about that a graduate medical school should be open to licensed practitioners irrespective of the kind or amount of medical instruction they may have received.

On this basis the graduate medical school should provide elementary courses for poorly trained practitioners as well as the advanced courses before mentioned. It is clear that while poorly trained men may be admitted to the school they should be restricted to those courses which they are qualified to pursue. Success in post-graduate teaching will depend largely on instruction to small groups where the student may receive individual attention. The instruction should be adapted as far as possible to the special needs of each student, yet the rights of the majority of such a group must take precedence over the needs of any individual. Therefore, a student should not be allowed in a course if he is a hindrance to the proper teaching of the rest of the group.

While then it is not desirable to fix a definite minimum educational requirement for admission to the school, it is necessary to have such a requirement for each individual course. These requirements will vary with the different courses and may vary from time to time in the same course within certain limits according to the qualifications of the group of students taking the course. The authorities of the graduate medical school must have full power to decide whether or not a student may pursue a given course, and admission to the school should carry with it only the privilege of attending such courses as, in the opinion of the authorities, the student is qualified to take.

This absence of fixed standards in the graduate medical school is in striking contrast with the conditions in the undergraduate school. The fundamental reason for this difference lies in the fact that the medical school proper confers the degree of M.D. This implies definite requirements as to previous education, a course of four years and a fixed curriculum. The student receives a definite fundamental training in the medical sciences and an experience which should enable him to properly care for the sick. There is a definite minimum standard to which all must attain who would have the degree of M.D. To the extent that the graduate school grants certificates or later may confer degrees, equally rigid requirements should be enforced.

In another way the graduate medical school differs widely from the undergraduate school. In the latter the student has no choice as to his subjects of study or the length of time he will spend on each. The Faculty determines these matters when it fixes the curriculum. This statement is essentially true even in those schools where, during a part or the whole of the fourth year, the students are allowed to exercise a choice from a number of "elective" subjects. The extent to which this may be wisely permitted may be open to question, and it will vary with the previous training and the ability of the students; but there can be no question but that a student should receive a broad general training in the fundamentals of medicine before he is granted this privilege. He should first receive in each required subject such training as the Faculty considers essential for the degree of M.D. In other words, except in the matter of time, he should have fulfilled the essential requirements for his degree before he exercises a choice as to his studies.

If, as a result of better education, of better training, and greater ability, he is able to attain in less than four years that broad medical education that the medical degree should represent, there is no objection to allowing him to choose the subjects on which he will spend the balance of the time required for the degree. But any school which allows such choice earlier will be

in danger of turning out graduates who are unequally developed—strong in some directions and correspondingly weak in others that should be essential to a well-rounded medical education. At the time, then, when a medical student should be allowed a choice in his studies, he already is a graduate in medicine, from the point of view of acquired knowledge, and in his "elective" work he is really pursuing graduate studies which are administered by the undergraduate school. So the general statement remains true that undergraduate medical students are not allowed to choose their subjects.

In the graduate medical school the conditions are entirely different. Here the student is allowed a free choice both as to his studies and as to the length of time he will pursue them. It is assumed that the graduate knows in what direction he wishes to develop his knowledge further or he has found by experience what his weak points are and wishes to strengthen them. In either case he is entitled to make his own choice of studies. The length of his stay at the school will depend in part upon the course he wishes to pursue but will often be determined by the length of time he can remain away from his professional work. Furthermore, the time when he can best get away from his professional work will vary. So the physician must not only be allowed to decide the length of time he will spend on a given subject, but he must be allowed to choose the time of year when he will pursue his studies.

As far as possible, then, the graduate medical school should aim to provide instruction in important subjects throughout the entire year. In the case of many subjects in the undergraduate curriculum, it is enough if instruction is provided once a year for a specified number of weeks or months, but such a plan will not adequately meet the reasonable demands that will be made on the graduate school. The physician should be able to take a single exercise of an hour or to pursue a course of a year or more; and he should be able to take any subject he is qualified for, as far as possible, at any time.

Notwithstanding these fundamental differences, it is desirable and practicable that the graduate medical school and the medical school proper should constitute but one educational institution. The common use of the same equipment and the same teachers not only prevents needless duplication but may enable the combined schools to secure better equipment and better teachers than either could alone.

In like manner the needless duplication of courses in the two schools should be avoided, but the problem of how far graduates and undergraduates should be admitted to the same course is a difficult one to solve. To a limited extent this can be done without detriment to either class of students, and to the extent that this holds true such a combination should be made for the sake of economy of resources and of effort. The extent to which this can be carried advantageously should be decided by practical experience rather than by theoretical considerations.

The courses which are used jointly should be organized primarily either for undergraduates or for graduates. The interests of the students for whom the course is primarily intended must be paramount and other students should be admitted only to such extent as will not interfere with such interests.

Such a combination of students is especially desirable in the laboratory subjects. The problem here depends essentially on the number of instructors available and this may be adjusted to the number of students. It will often be desirable that the graduate students should have desks separated from the undergraduates and that special assistants should be assigned to teach them. Under these conditions they cannot interfere with the regular course and the graduates are likely to get better and more thorough instruction when the energies of the whole department are given to the course than when a course is organized for a few students only. Therefore in the laboratory subjects the combination of the two classes of students should be encouraged as far as possible.

In the clinical courses the conditions are sufficiently different to demand that we proceed very cautiously. Graduate students should as a rule be excluded from these undergraduate courses in which the instruction is given to small sections. Usually such sections are already too crowded with the regular students. Furthermore, unless a graduate has had almost exactly the same training as the regular students in a section he must either interfere with the regular work or he will himself get little profit from the course.

The limitation of clinical material in a given subject, at the time when undergraduate instruction is being given, will often be the determining factor in permitting a graduate to join an undergraduate course. Even here the rights of the undergraduates must not be sacrificed, and the graduate may have to be content with a course that only in part answers his individual needs. If, however, the graduate can leave his practice only at this particular time, it is better to take what he can get. It profits him not at all that the school, in some other month, when the clinical material is not used for the regular students, can give him a course that is better adapted to his special needs,—for he cannot take it.

It is in some ways fortunate that more physicians are able to get away in the summer months than at other seasons of the year for this is the time when the undergraduate school has a vacation and does not need the material. At the time of the greatest demand upon the graduate school all the resources of the institution are available for its use.

Interesting possibilities arise if we stop to enquire why the undergraduate medical school

has so long a vacation. The best schools give but eight months of actual instruction, although the school year may nominally cover nearly nine calendar months. Are four months of rest from medical studies essential each year for the well-being of the medical student? The answer is found in the fact that many students pursue medical studies during at least a part of their vacation without detriment. The duration of the school year is partly a matter of tradition and is determined in part by a consideration of the convenience of the teachers.

We have seen that courses of the grade of the undergraduate courses are desirable in the graduate medical school for many graduates. Why should not such courses be open to the undergraduate students during vacation? It has long been the custom in medical schools to offer such courses for the regular students who have failed to pass in any subject. Why should not such courses be open also for the abler students who have not failed? And why should not such students be allowed to count such courses toward their degree, if these courses are equal in thoroughness and in duration to the corresponding courses of the curriculum? In other words, why shouldn't students during the summer vacation be allowed to anticipate their future work, if prepared for it, as well as to make up back work?

There is, of course, a practical limit to such privileges. A student should not work continuously the year round. But it would seem reasonable to allow a student to anticipate at least four months of his medical course during the three summer vacations. This would make it possible to shorten the medical course to practically three and a half years, without making any sacrifice in the standards of education. Since in many good colleges the A.B. degree may be obtained in three years by a bright student, it would be possible for such a student, under this plan, to obtain both his A.B. and M.D. degrees in six and a half years from the preparatory school, without counting any time double for these degrees. This is a close approximation to the six year "combined" course, to which many educational authorities object.

There has been much criticism of the length of time needed for a good medical education. Here is a feasible plan by which it may be materially shortened without sacrifice of standards. This matter assumes greater importance when we consider that a very large proportion of our graduates voluntarily add at least a year of hospital work to their medical education, and that there is now a strong movement toward requiring such an extra hospital year as a requirement for the degree of M.D.

One of the most important problems of the graduate medical school at present is that of granting certificates; and one of the most difficult problems of the future will be that of granting special degrees.

Hitherto certificates have been granted by "post-graduate" medical schools in a somewhat indiscriminate way. Sometimes they have not necessarily meant anything more than that the student has paid for a certain course,—with perhaps an extra charge for the certificate itself. Neither the attendance nor the character of the work in a course has been, as a rule, checked with sufficient care to give the certificate the meaning it should have. This criticism unfortunately applies to some of the best schools as well as to the poorer ones.

This condition of affairs has arisen in part because most of the "post-graduate" schools have been proprietary schools and have engaged in a commercial competition for students, and in part because a large number of those students want the certificates to hang in their offices for the purpose of impressing their patients. The number of such students, who care more for the possession of the certificate than for the quality of the work, is sufficiently large, so that the proprietary schools have feared to establish reasonable standards for certificates, even though the best of them clearly recognize the evils attendant on the present loose methods.

In considering this matter we should recognize that every student in the graduate medical school should be entitled, if he desires it, to an official statement of the work which he has performed. He is just as much entitled to such a statement as he is to a receipt for any money he may have paid to the school. There can be no objection to having such a document state the facts as to his attendance at any course, as to the character of his work, and as to any mark he may have attained in any examination. The statement of such facts, however, does not constitute a certificate, in the sense that we are using the term, although such facts would naturally be incorporated in any certificate that might be issued.

The distinguishing feature about a certificate is its form,—not the substance of the statements it contains. A special form might be adopted by a school for official statements of the character mentioned above, yet it would not properly be called a certificate. It is only when the statement takes a form similar to a diploma that it becomes a certificate in the sense that we are using the word. Such a certificate, or diploma, must have the character of an official document. It usually has the name of the school or university so displayed as to readily attract attention, and it is usually adorned with the college seal. Its form is made attractive for display, and it is frequenty framed and hung upon the wall or otherwise displayed so as to attract attention.

Such a certificate from an institution of learning is naturally supposed to confer some distinction upon its possessor, and to indicate that the institution has set its seal of approval upon that individual. One of the chief objections to certificates which are loosely issued is the lack of discrimination on the part of the public. If the

public carefully read such a document and considered just what it implies, there would be little objection to such certificates, if they stated actual facts clearly. But the public is prone to see only the name of the college and its seal and to attach to the document practically the same importance that it does to a degree. Unscrupulous physicians take advantage of this to convey to the public a false idea of their attainments. Herein lies the danger.

On the other hand, if a student in the graduate medical school has attained special skill in any subject by a sufficiently thorough course, if his education and ability are such that the university may properly set its seal of approval upon him, it is not only proper to issue a certificate to that effect, but there is no more objection to the display of such a certificate than there is to a similar use of any degree which he may have won.

It is by its regulations about certificates that a graduate medical school establishes its standards. Undoubtedly these regulations will vary somewhat in different institutions, just as the requirements for a degree vary in different medical schools. In reality a certificate is a degree on a small scale, and an institution which is solicitous about its reputation should not issue such a certificate to a person to whom it would not be willing to issue a degree after a sufficiently prolonged course of study. The requirement as to the length of the course for a certificate should be sufficient for the student to acquire something of the spirit and standards of the university. The course during that time should be on one subject or on subjects sufficiently correlated to make the course a consistent entity. Such a course should receive the approval of the authorities of the school, the character of the student's work should be satisfactory, and the amount of knowledge he has acquired should be tested by a suitable examination. Finally the student's previous education and experience should be taken into account, in addition to the work done at the school.

The Faculty of Medicine at the Harvard Medical School has established such requirements for certificates from the Graduate School of Medicine, and has fixed the minimum time for such a certificate at four months of work occupying the whole day.

A few words only need be said at present on the question of having graduate medical schools grant degrees. It is a large and very important subject and demands careful consideration. Harvard University has postponed the consideration of this matter, and I can only give my personal views.

I believe that degrees should ultimately be granted by the Graduate School of Medicine and that they should be of a higher grade than the degree of M.D., bearing to that degree something of the relation that the degree of A.M. or of Ph.D. bears to the degree of A.B They should be granted only after a systematic course of at least eight months' duration, which has been approved by the school authorities. It would seem reasonable that thorough scientific work by properly qualified students for that length of time in a course approved by the school authorities should receive the recognition of an appropriate degree.

All that has been said about standards in connection with certificates applies with even greater significance to such degrees. The question of previous education and experience especially requires careful consideration. Such degrees in certain well-recognized special lines from universities of high standing might do much good in establishing standards for specialists and might lessen the recognized evil of having a physician pass himself off on the public as a specialist in a certain line on the flimsy basis that he has given a few weeks to the study of this subject. In that time he can only get a smattering of knowledge in his specialty, he is not qualified to properly treat his patients as a specialist, and he brings discredit on the profession by pretending to do what he is not capable of doing.

The precedent for such degrees has already been established in the degree of Dr.P.H., and I believe that the wisdom of establishing similar degrees in other departments of medical knowledge will soon become apparent. On the other hand the need of definite standards among institutions of learning in connection with such degrees is emphasized by the existing differences in the requirements for the degree of Dr.P.H. in different institutions. At Harvard the requirements are high and a course of eight months is required, whereas at some institutions this degree is granted for a shorter and less exacting course. Reasonable uniformity in the requirements for such a degree in different institutions is very desirable.

It is recognized by every one who is familiar with the situation that graduate medical instruction is becoming an important factor in medical education. It carries with it great possibilities for good to the community. In it we may find a remedy for the existing variable and often low standards of medical education in this country. However much those standards may be raised and unified, they will affect only the future medical students and physicians. It is only through graduate medical schools that it is practicable to raise the standard of the physicians who are already in practice.

Hitherto this important branch of medical education has received little serious consideration. Harvard is the first university in this country to place graduate medical instruction on a university basis, and to recognize its importance by organizing it as a separate department of the university. This example should be followed elsewhere. The "post-graduate" medical schools are, with a few exceptions, proprietary schools. A few are doing good work, with high aims. Many, however, are mere com-

mercial ventures organized by groups of physicians largely for their own benefit. Many are so poorly equipped or so poorly manned as to have little real value.

The better schools of this class like the proprietary medical schools should seek real affiliation with strong universities. The poorer ones, like the poorer medical schools should go out of existence.

It should be the duty of the medical profession to correct the recognized evils of this form of medical education, and there is no better means of securing this result than through the organization of the American Medical Association, which has done so much to correct the evils that existed in undergraduate medical teaching. In the case of graduate medical teaching, publicity and the enlightenment of the public as to standards will prove equally effective means of correcting existing evils.

TRANSFUSION IN THE TREATMENT OF RUPTURED TUBAL PREGNANCY.*

BY ROBERT M. GREEN, M.D., BOSTON.

(From the Gynecological Clinic of the Boston City Hospital.)

THE direct transfusion of human blood, conceived in theory several centuries ago, and subsequently attempted from time to time without success, was first made a practicable surgical possibility in 1906 by the scientific genius of Crile. Since then, improvements in the technic of the operation have been made by Elsberg, Vincent, and others; and today direct blood transfusion stands as a recognized therapeutic procedure of great beneficence and value.

The field of indications for transfusion has been steadily widened until it includes a large variety of conditions characterized by diminution in the quantity or change in the quality and constituents of the circulating blood. In some of these conditions, the benefit of transfusion is transient or doubtful. In none is it more strikingly definite, curative and life-saving than in the acute anemia of traumatic hemorrhage, from any cause, and in the imperfectly understood group of diseases, collectively classified under the term *hemorrhagica neonatorum*.

Of the conditions giving rise to acute internal concealed hemorrhage, the rupture of a tubal pregnancy affords one of the most dramatic and serious pictures of surgical emergency. Though not frequent, it is unhappily not rare, and occurs with a considerable percentage of regularity in the clinical experience of general as well as of special practitioners. Though not often immediately fatal, it generally becomes so if not promptly treated by surgery; and though nature may occasionally effect a cure by the organization of a pelvic hematocele, rarely by the continuance of abdominal pregnancy and formation of a lithopedion, the after-results of these terminations are likely to be inconvenient, serious or lethal. Even prompt surgical intervention is by no means always effectual in saving life; for the shock of laparotomy, superadded to that of hemorrhage, often constitutes the *coup de grâce* to a patient already *in extremis*. For these reasons, any procedure which shall minimize the shock of operation and restore, in whole or in part, the volume of blood lost, is urgently to be desired in the effort to reduce the mortality of this grave abdominal emergency.

The employment of direct blood transfusion in the treatment of ruptured tubal pregnancy immediately suggests itself to anyone familiar with the conditions. As a matter of fact, I have been able to find in the literature very little reference to the use of transfusion in the immediate treatment of ruptured tubal pregnancy.

Anderson,[1] in the discussion of a paper by Wilkinson, mentions having examined the blood of a patient with secondary anemia following a ruptured ectopic pregnancy, in whom "transfusion was followed by very happy results."

Soresi,[2] in an article on "Clinical Indications for Direct Transfusion of Blood," mentions two ruptured ectopic pregnancies in a list of twenty-five cases in which he has performed transfusion, but gives no further details, other than to state that both patients were helped by the transfusion, and recovered.

Doubtless the procedure has been much more extensively employed in ruptured tubal pregnancy than these references would seem to indicate, but the cases have not happened to come to my notice, or have not been reported. Obviously, Anderson's case was one of late transfusion, and hardly comes within the field of our consideration. Soresi's cases were probably fairly early and acute, though he does not state whether the transfusion was done at the time of original operation or later.

It was therefore my desire to test the procedure in actual practice, and to determine whether immediate transfusion might not be a valuable adjunct to the surgical treatment of ruptured tubal pregnancy.

Opportunity to do this has arisen twice during the past five months in the Gynecologic House Clinic at the Boston City Hospital. For the privilege of operating upon and reporting these two cases, I wish to express my most courteous and appreciative gratitude to the Visiting Surgeon, and to my senior colleagues on the staff. I wish also to extend my cordial and sincere thanks to all the house-officers and nurses, who assisted in the operation and care of these patients, for the cheerful and efficient fidelity, zeal and intelligence of their coöperation.

CASE I. M. A. R., 25. Married one year. No previous pregnancies. Last catamenia, May 26, 1912. Entered B. C. H. (Gyn. 181-209) at 1 a. m., on Aug. 8, 1912, with a history that 24 hours ago she had a sensation of scalding, followed by severe pain in the lower part of the abdomen. She has grown progressively weaker and has been very

* Presented at the Boston City Hospital Clinical Meeting, Dec. 26, 1912.

thirsty all day. Some vomiting; no headache or fever. Physical examination shows a well developed and nourished woman with an anxious expression, restless, and with marked pallor of skin and mucous membranes. Pulse 136, of fair quality, and regular. Temperature 98.0°. Heart and lungs normal. Abdomen moderately distended, with slight tenderness and spasm throughout, most marked in the left lower quadrant. There is shifting dullness in both flanks. By vagina the cervix is felt to be soft and velvety, the external os patulous, the internal os closed. There is a slightly blood-tinged discharge. Uterus somewhat enlarged and globular. In the left vault there is a bulging, doughy, tender resistance. White count 18,000. Hgb. 35%.

The diagnosis of ruptured left tubal pregnancy seemed clear, and immediate operation was advised and accepted.

On opening the peritoneum, the abdomen was found full of dark fluid blood and clots, to the estimated amount of about three pints. The left tube was found to be the site of a ruptured ectopic pregnancy, and was accordingly tied off and removed. The right appendages were normal. The appendix was thickened and showed a few old adhesions, and was therefore also removed. The patient's pulse was by this time 160 and of very poor quality. In view of her precarious condition, transfusion had previously been suggested, and the husband, who had volunteered as donor, had meantime been prepared. While the abdomen was being closed in layers by the senior assistant, the donor's left radial artery was exposed under ½% cocaine local anesthesia. The patient's left median cephalic vein was also exposed, and transfusion performed by the usual technic, employing an Elsberg cannula in making the anastomosis. Good pulsation was obtained in the recipient's vein, and the blood was allowed to flow for 25 minutes, delivering an amount estimated at 1½ pints. During this period the patient's color and general appearance improved notably and her pulse fell to 132. By this time the donor was becoming pale, and sighed several times, though his pulse had risen from 70 only to 90. The transfusion was therefore intermitted, the vessels tied off, and the wounds closed with horsehair stitches.

The patient made an uninterrupted convalescence. For several days she had a slight pyrexia, as is common in these cases from absorption of fibrin and from peritoneal insult; but the pulse never again rose above 132, and dropped steadily to a level of about 90. She was discharged well on the fourteenth day after operation, with both wounds healed by first intention, hemoglobin of 75%, the uterus well involuted, and the pelvis free from exudate. The donor's wound also healed by first intention, and after a few days he felt none the worse for his experience, and has had no unpleasant after-effects, either from his loss of blood or from the sacrifice of his radial artery.

Case II. S. F. H., 36. Married for six years. No previous pregnancies. Last catamenia Oct. 12, 1912. Entered B. C. H. (Gyn. 186-353) on Dec. 20, 1912, with history that two weeks before entrance she began to have cramp-like pain in the lower abdomen, which has continued ever since, and for the past week has been accompanied by moderate flowing. No vomiting, chills, or fever. No history of previous similar attacks of pain.

Physical examination shows a well-developed, slender woman, with moderate pallor of skin and mucous membranes. Heart and lungs normal. Pulse 128, regular, fair quality. Temperature 98.8.° White count 7800. The lower half of the abdomen was tender, with moderate fulness and spasm, especially on the right. No shifting dullness was made out in the flanks. Vaginal examination showed the cervix small and soft, the uterus of apparently normal size and displaced forward and to the left by a tender, rounded, semi-fluctuant mass, about the size of a large orange, occupying the right vault and extending into the posterior cul-de-sac. The left vault was free. There was no flowing.

The patient's history suggested an ectopic pregnancy, with primary rupture two weeks before, followed by encysting of blood clot and the formation of a pelvic hematocele. Pelvic abscess was also considered as a diagnosis, but was thought unlikely in the absence of fever and leucocytosis. As the patient's condition seemed in no way critical, she was put to bed and kept under observation.

On Dec. 21, her condition was essentially the same. That night she had a considerable exacerbation of pain in the lower abdomen, but no flowing, nd her pulse began to rise. When seen at 9.30 a. m., on Dec. 22, her clinical picture had distinctly changed. She was markedly pale and restless, had a thready pulse of 140, and there was a notable increase of general abdominal spasm and tenderness, though no free fluid was made out. In view of these developments, the diagnosis was made of secondary rupture of an encysted ectopic pregnancy, and immediate laparotomy was advised and accepted. The patient's husband consented to act as donor, if transfusion should be deemed necessary.

On opening the abdomen, a considerable amount of dark, clotted blood was found free in the peritoneal cavity, and floating among the clots was a two months' embryo. The right tube was ruptured and connected with it was a cavity of adhesions, evidently representing the result of the first rupture two weeks previously. The right tube, and the small sclerotic appendix were removed. It was then discovered that the fluctuant mass previously felt by vagina in the posterior cul-de-sac, was a parovarian cyst originating from the left broad ligament, but prolapsed and adherent behind the uterus. This cyst was removed intact, and the uterus suspended. The patient's pulse was now 160, irregular, and her condition evidently grave. Therefore, while the senior assistant was closing the abdomen in layers, the donor's left radial artery was prepared, by the usual technic, and transfusion performed into the patient's right median basilic vein, an Elsberg cannula being employed in making the anastomosis. Good pulsation was obtained in the recipient's vein; but as the donor's artery was small, and his pulse-volume not as great as in the preceding case, the flow was allowed to continue 40 minutes. During this time, the patient's color and general appearance improved markedly, and her pulse dropped to 120. At the end of this period, the donor, whose condition had apparently remained unchanged during the transfusion, turned suddenly pale and sighed profoundly. The vessels were therefore tied off and the wounds closed with horsehair stitches, a continuous subcuticular stitch being used in the case of the donor.

The patient's pulse later rose again to 140, but dropped to normal in a few days, and she made an

uninterrupted convalescence, except for the moderate, characteristic pyrexia of the first week, as above described. She was discharged on the seventeenth day after operation, with both wounds healed by first intention, and hemoglobin of 70%. The donor recovered promptly and completely.

Several points of technic deserve comment in connection with this case. In the previous transfusion considerable difficulty was occasioned by the bleeding from small radicles on the posterior surface of the radial artery, which were cut in raising it from its bed. In the present case, therefore, the artery was exposed, but was mobilized only at the point of applying the cannula. The remainder of the artery was mobilized only at the moment of making the anastomosis, and the bleeding was much less than when the radicles were cut before the flow of blood into the vein was established. At a recent unsuccessful attempt at transfusion in a case of profound sepsis, failure seemed in part attributable to spasmodic arterial contraction from the trauma of the Crile clamp applied above the anastomosis. Accordingly in the present instance, no clamp was employed, the compression of the cannula alone being relied on to hold the blood current in check, and proving entirely efficacious. At first no ligature was applied about the cannula at the point of anastomosis; but after a while there began a slight leakage, which was, however, easily controlled by a ligature, passed without interrupting the transfusion.

These two cases are, of course, far too few to warrant any positive or generalized conclusions. Both patients might well have recovered without transfusion; but it is my belief, from such experience as I have had, that their prognosis without transfusion was fairly grave, and that the transfusion at least did no harm, minimized shock, and expedited convalescence, even if it did not actually save life. These two cases, in my opinion, seem to indicate that direct blood transfusion may be a procedure of definite value in the treatment of ruptured tubal pregnancy. It would certainly be unwise and unnecessary to advocate its employment as a routine measure, but in properly selected, grave cases it seems justifiable. It can do no harm, and may do much good. The ideal method would be to have one operator begin the preparation of the donor's artery at the same time that another operator opens the recipient's abdomen, in order that the transfusion may be made immediately after the hemorrhage is checked; but if this be impracticable, the method above described is satisfactory. In any event, I believe that transfusion at the time of laparotomy is much preferable to transfusion at a later period, since it supplies the blood when it is most needed, combats the shock of the primary operation without involving additional shock, and by enabling the operator to take advantage of the recipient's original anesthesia, obviates the necessity and disadvantage of a second anesthesia, without which the transfusion can hardly be performed with success and convenience. It is to be hoped that further reported experience, from different sources, in the employment of this procedure, may contribute sufficient clinical data to determine definitely its value, indications and limitations in the treatment of ruptured tubal pregnancy.

SUMMARY.

1. Direct blood transfusion is a surgical procedure of beneficence and value in the immediate treatment of ruptured tubal pregnancy associated with excessive hemorrhage, and may to advantage be employed in such cases as soon as possible after the hemorrhage is checked, and under the original anesthesia.

2. Even if the patient's life is not in imminent danger, such transfusion, in serious cases, at least does no harm, minimizes shock and expedites convalescence.

3. In the technic of transfusion, if the Elsberg cannula be employed, it seems advisable not to apply a clamp proximally to the donor's artery unless the compression of the cannula proves insufficient to control the flow of blood. It seems also advisable not to mobilize the donor's artery completely until the moment when the anastomosis is made, since by this method troublesome hemorrhage from minute arterial radicles may be avoided.

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MENTAL SYMPTOMS ASSOCIATED WITH RENAL INSUFFICIENCY.*

BY MARY LAWSON HEPP, M.D., BROOKLINE, MASS.

MEDICAL literature contains frequent references to the close connection between failure in the function of the kidney and mental aberration; yet this correlation has not gained general and adequate recognition. The fact that patients showing mental symptoms frequently pass out of the hands of the general practitioner has perhaps contributed to this result.

Among those who call attention to psychic alterations as due to the suburemic state are Sir Dyce Duckworth, White, Diller, Berkley, Lugaro, E. F. Wells, and H. B. Allyn.

The French school use the term "petite uremie" to indicate the nervous and mental symptons which develop before the graver condition of coma to which English writers sometimes limit the term "uremia." We see in French literature also the term "folie Brightique," indicating the paranoid condition developing in the course of a nephritis. This term is referred to by Herrick in Osler's "Modern Medicine," where he expresses the opinion that the condition is encountered more frequently than melancholia, which has been rec-

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ognized as an accompaniment of nephritis, perhaps, longer than other psychic manifestations.

Accepting the clinical assumption that a nephritis is the reaction of an over-taxed kidney to a toxemia, it might be said that the mental symptoms are but one feature of a syndrome of which a degenerative condition of the kidneys is another. The pre-existing toxemia is perhaps the logical basis of both, yet since a normal kidney is capable of excreting a great quantity of toxic material, it is only with the failure of the kidney function that the poisoning of the nervous system appears. The connection is thus a vital one, whether regarded as concomitant, or sequential.

The general condition of renal insufficiency is indeed, so frequent, so potent, and of such paramount importance in clinical work that we may give it, so to speak, an artificial position as an entity in order to discuss the problems that arise from it—much as the sociologist gives to "poverty" the position of an entity, for similar reasons.

The term "renal insufficiency" should include not only the various degenerative conditions of the kidney, but the secondary failure of renal function in heart disease, as well as the relative insufficiency which occurs when a kidney ordinarily adequate to the demands of the organism becomes inadequate in times of special stress.

Accepting E. F. Wells' definition of uremia as "an auto-intoxication which affects mainly the nervous system and occurs in connection with renal insufficiency," it is logical to suppose that an intoxication which affects *mainly* the nervous system, should also affect *first* the nervous system. It would seem an absurd clinical assumption, indeed, that toxic substances capable of producing the serious and fatal poisoning which occurs in uremic coma, (a process so extreme as to bring about demonstrable changes in the cerebral ganglionic cells) should not affect the nervous system in varying degrees long antecedent to such a final catastrophe.

An insufficient kidney that under ordinary circumstances would not attract attention may be the determining factor in a typhoid delirium, a facial neuralgia, an attack of asthma, a period of insomnia, or a delirium tremens, though only one term in the equation.

The suburemic condition also frequently underlies the nervous symptoms of the chronic semi-invalid—the patient who is apt to be classed as "neurasthenic"—who complains of headache, dizziness, inability to fix the attention, vaso-motor disturbances, et cetera.

It is less generally recognized that the psychic alteration may be the first and for a time the only symptom of uremia. Lugaro says, "Slight but chronic lesions of the kidney can determine conditions of stupidity, temporary loss of speech, and violent attacks of confusion and agitation" —and again, "In mental disease it is somewhat exceptional for the organic factor to be apparent." If during this period of mental disease, before the organic factor becomes apparent, the patient drifts to an institution for the chronic insane, it is perhaps only at the autopsy that the organic factor claims attention.

It would be difficult to find a condition more likely to remain undiagnosed than a "slight but chronic" lesion of the kidney. Not only does it fail to invite attention, but it frequently escapes detection by the most patient and skilful clinician. To quote Berkley, "the presence of a very sclerotic kidney is not inconsistent with the appearance of fair health on the part of the patient, and the cause of auto-toxic symptoms may remain a profound mystery until revealed at the autopsy table." Tirard, among many clinicians, calls attention to the great difficulty encountered in making an early diagnosis of nephritis, and to this the experience of any practitioner will bear testimony.

Cabot reports a series of 35 cases of chronic interstitial nephritis in which both the clinical histories and the autopsy reports were available, the diagnosis being based on the latter. Of these cases five had been diagnosed accurately during life. In ten some pathological condition of the kidney was recognized. Four were diagnosed as arteriosclerosis. In sixteen—nearly 50%—the diagnosis was made without reference to the kidneys. These cases had been carefully examined by competent general medicine men. We could hardly expect the nephritis which passed into the hands of the alienist to fare any better than this, in regard to diagnosis.

The following cases, among those which first called my attention to the subjects of this paper, are reported from my office records while in general practice:

Case 1. Patient with chronic diffuse nephritis, in whom mental aberration was noticed before this diagnosis was made. During a period of many years she showed repeatedly psychopathic symptoms which improved with proper treatment of the kidney condition. Two cases similar to this, of several years' duration, I have had an opportunity to observe in the practice of colleagues.

Case 2. Patient with chronic parenchymatous nephritis who developed acute hallucinosis with much mental confusion, and had to be committed to an insane hospital. The mental symptoms disappeared as the renal crisis passed.

Cases 3 and 4. Chronic interstitial nephritis, with arterio-sclerosis. Cases of so-called "agitated melancholia," both of which had been for a time in institutions for the insane. Treatment directed to the underlying nephritis brought about notable improvement of the mental symptoms. Case 3 refused to follow the regimé laid down for her, and relapsed after a short period of improvement. Case four continued sufficiently improved to live at home. As both these patients were nearly sixty

years of age, improvement was all that could be reasonably hoped for.

CASE 5. Chronic interstitial nephritis of low grade. The patient showed mental depression, insomnia, suspicion, irritability and a tendency to fixed ideas. Mental symptoms varied directly with the physical.

CASE 6. Diffuse nephritis. Patient was acutely depressed and had twice attempted suicide. On treatment for nephritis, recovered completely and resumed an active life. Later a giving up of the regimé on which she had recovered, brought about a recurrence of the mental symptoms.

CASE 7. Chronic interstitial nephritis of low grade. Patient showed persistent insomnia, lack of mental concentration, and melancholia with some vague delusions of persecution. After treatment for the renal inadequacy, this patient recovered from her mental symptoms, though still in impaired health. An interesting feature in this case was the following: In order to increase elimination, electric light cabinet baths were ordered. The urine at this time was of extremely low specific gravity, 1003, with total nitrogen .3%. The perspiration was twice collected and analyzed, showing a specific gravity of 1008, and 1009, and total nitrogen .9%. This indicated that the functioning of the skin was for the time greater than that of the kidneys, thus bearing out the claim of some observers that the skin is able to take on a vicarious function in cases of this kind. The remarkable benefit resulting from the treatment was in accord with these findings.

The above case records were selected from a series of 24 cases, in which the correlation between the mental and renal symptoms seemed too close to be disregarded, and in which improvement in the psychic symptoms paralleled that in the somatic. The mental condition varied with the specific gravity and total excretion rather than with the amount of albumen or casts. In the majority of these cases the mental symptoms preceded the physical. The patients were usually of the neurotic type where we would naturally expect the nervous tissue to be less resistant than normal.

It is difficult to ascertain to what extent degenerative conditions of the kidney exist in hospitals for the insane. The subjoined figures are suggestive in this connection.

The State Hospital at Norristown, Pennsylvania, has recently issued an index of 1180 necropsies, at the suggestion of Professor Allan J. Smith of Philadelphia. Taking the records covering the years 1890-1907 inclusive, four series of cases were selected for analysis.

All patients over sixty years of age were excluded, as were cases of paresis, epileptic insanity, and dementia—in which we may assume the mental symptons to be due to organic changes. Theoretically at least we distinguish between the functioning of nerve centres actually impaired or partly destroyed, and the reaction of centres still normal, to pathological stimuli. Disturbances of the latter type are what would be expected as suburemic symptoms, though we can well imagine that irreparable injury would result from prolonged irritation to the central nervous tissue.

Of 139 cases showing excitement, elation or irritability 117 showed degeneration of the kidney, and in 99 of these degeneration of the liver was also present. Of the remaining 22 cases, twelve showed degenerative changes in the liver, and in six the kidney was tubercular.

The second series of 100 cases, in which depression was the most marked symptom, showed 43 cases of chronic interstitial nephritis, and 33 of chronic parenchymatous nephritis. Degenerative conditions of the kidney of a chronic type were present in eight other cases, and four showed acute nephritis. Of the remaining 12 cases four had tubercular kidneys, and seven showed degenerative changes in the liver.

Of eight cases of paranoia six showed degeneration of the kidneys.

Of eleven cases of manic-depressive insanity 10 showed degeneration of the kidney.

For the four series taken together, the percentage of degenerative conditions of the kidney was 90; while of the total 258 cases there were eight only which showed no degeneration of either kidney or liver.

Even allowing for a maximum of error, due to the personal equation of an over-critical histologist, these figures seem far too significant to be lightly regarded. The series examined covered the services of five pathologists.

At the State Hospital at St. Peters, Minn., in 1908, 60 admissions were studied irrespective of their mental symptoms. Of these 80% showed some degree of renal inadequacy. In the report of these cases it was stated that a definite coincidence was observed between improvement in the mental condition and the functioning of the kidneys.

A consideration of the character of the mental symptoms due to uremia carries us into somewhat unexplored territory. In studying the psychoses a clear logical distinction must be made between the psychogenetic factors that may determine the *character* of a psychosis, and the somatic conditions that determine its *occurrence*. It is to the latter that our attention is directed.

That the physical alterations in uremia should be definite and uniform would seem improbable, *a priori*. A condition depending, to quote H. G. Wells, not "upon one but many various and varying causes," and protean in its manifestations, could hardly produce a specific reaction in the nervous cells, even if we supposed these to be uniform in different individuals. The widely varying psychic reactions to so definite a poison as alcohol, and the fact that paresis, tho a pathological entity, is a "veritable microcosm of the psychoses," lends support to this improbability.

White and Berkley speak of a hullucinatory-confusional type of psychosis as somewhat characteristic of uremia. Berkley says,—"The hallucinatory-confusional insanity may begin without other indications of renal disease." Reference has already been made to the paranoid condition, with delusions of persecution—"folie Brightique." This trend was noticeable in several of the cases reported in this paper. Melancholia is perhaps more often referred to in medical literature than other conditions, but almost any form of mental aberration may occur.

The progress of scientific medicine depends much on original research in the laboratory of the chemist and the histologist; but it depends no less on the constant correcting of perspective, the constant redistributing of emphasis, and the proper organizing and correlating of facts ascertained by the worker in a circumscribed field. The general medicine man must "think in three dimensions," if he is to profit by the detail work which must be rigidly done "in one dimension." A man's mind must "have its systole and its diastole—must be continually expanding and contracting between the whole human horizon and the horizon of an object-glass," and we need to be somewhat on our guard lest the systole be too prolonged in this day of the narrower specialism.

If the paper just read has arrested our minds in diastole this evening, it has served its purpose.

That mental symptoms may be the earliest indications of renal insufficiency—that they are the frequent accompaniments of such a condition—that treatment directed to the underlying nephritis would in many cases ameliorate them—and that a critical analysis of the somatic basis of the psychoses would frequently transfer them from the somewhat mystical realm where they now lie into the domain of general medicine, seem to the writer propositions not unworthy of attention.

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OPHTHALMIA NEONATORUM: ADMINISTRATIVE STANDARDS.*

BY HENRY COPLEY GREENE,

Agent for Conservation of Eyesight, Massachusetts Commission for the Blind.

As the Secretary of State Board of Health has said more than once, the State Board and the Massachusetts Commission for the Blind are jointly campaigning to make ophthalmia neonatorum as rare a disease as possible and to prevent its damage to eyesight. In this attempt the Board of Health has carried on the work of administrative hygiene while the Commission for the Blind has stood as a special advocate both for those already blind and for those threatened with blindness. In this capacity, the Commission has followed to its source every known case of blindness from ophthalmia neonatorum, has spread information, and has helped to perfect the administrative machinery. The outcome is promising. And though it is still too soon to quote significant figures, it is good to know that the Boston Nursery for Blind Babies, which admitted four children blind from ophthalmia neonatorum in 1911, received in 1912 only one.

Though encouraging, this fact is symptomatic only. The whole story is worse. And even if this one child's blindness summed up the damage done by ophthalmia neonatorum in 1912, it would demand our attention; for it offers us all, as guardians of the public health, a somewhat notable challenge. The case is as follows:

The baby, X, was born of foreign parents in a mill city. The mother had been infected with gonorrhea. A midwife was in attendance. This technically illegal practitioner used no preventive at birth; and if she observed any redness or swelling of the baby's eyelids, or any unnatural discharge from the eyes, she did not notify the local board of health. No agent of the board visited the home; and the board had sent the parents no leaflet, setting forth the dangers of the disease. Small wonder, then, if the father also neglected to notify the board of health, but, assuming the physician's function, treated the child's eyes with rose water, till corneal ulceration resulted in the heavy scars which make the child totally blind.

I have said that this case offers a challenge to us all as guardians of the public health. Does it not indeed challenge us to show that in our own cities ignorant parents are warned, that midwives, *if permitted to practice*, are taught to use the nitrate of silver droppers sent to all physicians; and that mothers attended by ignorant practitioners are promptly visited and instructed in the essentials of infant hygiene?

This case, challenging as it may be, is hardly typical. The typical case of infant blindness from ophthalmia neonatorum, we must admit, is that of a baby delivered by a licensed physician,

* Paper read before the Essex North District Medical Society, January 1, 1913.

generally a graduate of some more or less reputable school. He fails to use the preventive, or after its use is baffled by a secondary infection. He observes the symptoms of "babies' sore eyes" which are, of course reportable, but fails to report, because the case seems slight. He prescribes an orthodox remedy, but employs no nurse, calls no consultant, fails to visit for a day or so, or longer, and when he calls again is surprised to find ulceration of the corneae. After this, too often, his most conscientious efforts are in vain.

To eliminate such cases, the Commonwealth and its officers have taken these steps:

(*a*) It requires notification of births within 48 hours;

(*b*) It requires the use of an approved preventive at every birth occurring in any lying-in hospital;

(*c*) In distributing to all physicians a dropper containing a 1% solution of nitrate of silver, it recommends the routine use of this preventive;

(*d*) It requires the immediate reporting of the symptoms of ophthalmia neonatorum both by physicians and nurses and by hospitals, to local boards of health;

(*e*) It lays upon these boards the duty and gives them the power, to take all possible measures for the prevention of blindness; and finally

(*f*) It advises with the local boards, through State District Health Inspectors, and follows up cases discharged from lying-in hospitals, so as to establish practical standards of treatment which shall exclude the possibility of needless blindness.

This system is humanly imperfect. But is it not worthy of active support?

Take the prompt birth-return law. It is important that it should be observed,

(*a*) Because every legally issued birth-return blank carries a reminder that ophthalmia neonatorum is reportable, and prompt filling out of this blank brings this reminder under the physician's or midwife's eyes at an opportune time;

(*b*) Because a prompt birth-return makes it possible for the board of health not only to send out timely warnings to parents, but to begin instructive work in infant hygiene.

The fruitfulness of such work both for general health and for eyesight can hardly be exaggerated. It has proved capable of reducing the infant death rate; and as for the matter of babies' eyes, in a very recent instance the warning to parents, sent out immediately on the receipt of a prompt birth notification, resulted in a mother's bringing her child for expert treatment in time to save his eyesight.

The *use of an approved preventive* is required, as we know, at every birth in any lying-in hospital. If doubt remains as to the efficacy of routine preventive treatment, the lying-in hospitals throughout the Commonwealth offer a wide field for experiment. The results to date are far from perfect. Not only slight silver reactions, but cases of gonorrheal conjunctivitis still occur in these hospitals, often enough to suggest secondary infections. Interested physicians will doubtless be able to minimize such occurrences.

In private obstetric practice I venture to add that physicians can aid in the State Board of Health's campaign by adopting the State dropper, wherever possible, for routine use. Though routine use of this dropper has been urged by the Secretary of the State Board of Health, the objection is sometimes raised that parents would rebel. But if the parents are frankly informed that the preventive will be used, even when gonorrhea is not suspected, much can be done to remove any popular prejudice that ophthalmia neonatorum is necessarily of gonorrheal origin.

Is not the presence of an unrecognised gonorrheal infection, moreover, a possibility to be guarded against? Take for instance the experience of a physician in the central part of the state, who was suddenly called to a confinement case. Though he knew the father intimately and believed him to be of the cleanest habits, he put him on his honor to say whether he had ever had gonorrhea. "No," said the young man. The use of the preventive was omitted. A galloping case of gonorrheal conjunctivitis began on the second day, and though the child was immediately removed to a hospital for expert treatment and constant nursing, the result was one eye blind. "After this," said the physician in question, "nothing will prevent my using the preventive in every case, with the *possible* exception of my own family.

The State's next demand—and this time it is no mere urgency, but a requirement of law—is the reporting of ophthalmia neonatorum, or of the symptoms of "babies sore eyes." As there has been some misunderstanding on this point, I may be pardoned a word of explanation. Ophthalmia neonatorum, like trachoma or poliomyelitis is defined by the State Board of Health as a disease dangerous to the public health. As such it is reportable. But what is ophthalmia neonatorum? Whether caused by the gonococcus or the pneumococcus or some other pathogenic bacillus, it is any diseased condition of the eye, originating within two weeks after birth, and manifesting itself in redness, swelling and unnatural discharge from one or both eyes. No matter when the physician finds a baby suffering from ophthalmia neonatorum, whether it is the third day or the thirtieth day, he is required to report. And even if the physician fails to make a diagnosis, the requirement is practically the same; for under chapter two hundred and fifty-one of the acts of 1905, if these *symptoms* appear within fourteen days a physician called to see the child —either then or thereafter—must immediately report in writing to the local board of health. This, in brief, is the opinion of the Attorney General.

Two objections have been raised against this law; one that it makes family misfortunes public, the other that it infringes on the rights of private physicians. The first objection is based on a misunderstanding. If the law required the reporting of gonorrheal conjuctivitis, the objection would at least be consistent. But as the law requires the reporting of a condition due to various possible causes, observance of its provisions cannot brand the family with the stigma of gonorrhea. This disease, to be sure, causes most of the serious cases. But the more implicitly the law is obeyed, the more light cases will be reported until gonorrheal cases are a relative rarity. For example, out of a total of 577 examinations at the bacteriological laboratory of the Boston Board of Health during 1912 only 15 were positive. Among the families of ophthalmia neonatorum patients, therefore, gonorrhea was apparently not much more prevalent than in the families of children with measles or scarlet fever.

The second objection to this law, is a plausible objection. The object of the law is plain. It is that the "board of health shall take such immediate measures as it may deem necessary in order that blindness may be prevented." After licensing the physician to practice, the State, by this law, limits that right. But in so doing it puts the physician in no exceptional position. By its license to practice, the State gives the physician, as it gives the public service corporation, a special privilege. And in the interest of the public safety it is surely warranted in limiting such privileges, as it deems needful.

Now if the registered physicians of this State were all ophthalmologists, if they all had skill in the delicate handling of ocular disease, the law would be, not only needless, but farcical. But Massachusetts is now alone with Tennessee in requiring no medical degree of physicians licensed to practice medicine on her citizens. Among the so-called physicians now actually practising in this State are a former midwife, and an ex-blacksmith whose only medical training was transient association with another so-called physician. The former midwife rubs lard on babies' eyes; the ex-blacksmith is one of the several physicians of my acquaintance who "prevent" gonorrheal conjunctivitis with—lemon juice.

Such practitioners are, of course, exceptional. Incapacity to cope with ophthalmia neonatorum is far less so. Even among the well-trained, experience is essential to the safe handling of such cases; and many an obstetrician comes upon a case of this disease only once or twice in a thousand births. Is it, then, unreasonable on the part of the Commonwealth to enter upon the delicate task of advising with physicians as to protection of children from the calamity of blindness?

If general physicians saw, as the Commission for the Blind constantly sees, the results of the opposite policy, they could not but agree that the treatment of ophthalmia neonatorum must not be left to their exclusive judgment. Not only the ignorant, but unfortunately, the reputable physician sometimes and very naturally blunders in caring for one of these children. And so indefensible has been the carelessness of certain members, even of the Massachusetts Medical Society, and so disastrous the results, that the Committee on Ethics and Discipline has sent them a reprimand.

From this ugly side of the picture one turns with relief to the constructive work begun by the health authorities. The local boards, as we know, are required to notify the State Board in every case. The nearest district health inspector then investigates and advises with the physician and with the local board. This system of checks and balances has disadvantages which skilled physicians are in a position to minimize. The local boards are too apt to lie back on the district health inspectors. Too often, instead of obeying the spirit of the law, they take no action other than notifying the State Board of Health. This means delayed investigation, delayed advice, and possibly a delay in adequate treatment for the disease, which no possible skill can remedy. By inducing local boards to advise with them and to supply them with nurses and with a consultant if need be, by such means as these, skilful physicians can make experts of any laggard boards of their acquaintance, and the result will be that when less able practitioners report a case the board will automatically take efficient action.

Not only local boards, but the district health inspectors themselves, need and deserve such stimulating help. It is hard for them to force upon unwilling general practitioners the standards which wider experience with these cases proves advisable. When general physicians, on the other hand, insist on constant nursing by skilfully trained nurses, and in serious cases on consultation and even repeated visits by ophthalmologists,—then the health inspectors' standards will be upheld and raised still higher; and this raising of their standards will affect medical standards throughout the State.

In suggesting what these standards should be, I have purposely omitted hospital treatment. Hospital treatment is sometimes essential. But babies with this disease are so often premature or (for some other reason) abnormally delicate, that bottle-feeding may make all the baleful difference between death and life. Moreover, as Dr. Nimmo Walker of Liverpool has pointed out, experience with a considerable number of cases, both bottle-fed and breast-fed, seems to show that bottle-fed infants with ophthalmia neonatorum are more liable to its worst results. However this may be, so long as separation from the mother, besides all its frequent moral disadvantages, subjects the child to greater danger of death, I for one cannot urge indiscriminate transfer of

these cases to any hospital where mother and child are not taken in together, or where provision is not made at least for partial breast-feeding of the baby and for preservation of the mother's milk supply till the time of the baby's discharge.

By increasing the number of hospitals where such humane methods are combined with technical skill, physicians can raise the standards of treatment for ophthalmia neonatorum. They can raise these standards again by demanding of local boards of health, and of the district health inspectors, well paid consultants, and where need be the regular paid attendance of ophthalmologists. And, once more, they can raise these standards above their present average level by insisting on constant trained and skilful nursing.

How far even this minimum requirement will raise present standards, you will see from the three case histories:—

CASE 1. Child born Sept. 6, 1911. No preventive used. Symptoms observed Sept. 11. Treatment begun Sept. 12. Case reported according to law. No trained nurse. No specialist called in consultation. The mother was helped by her mother-in-law. Case transferred to the Eye and Ear Infirmary Oct. 10, *blind* in both eyes. Physician, Dr. X, Harvard Medical School, 1904, member of the Massachusetts Medical Society.

CASE 2. Child born April 16, 1912. Symptoms in one eye observed at birth; in the other eye on the third day. No preventive used. Eyes not washed out by the doctor and no instruction given as to washing out the eyes. Case reported according to law. No trained nurse in attendance; no consultation with a specialist. The mother was helped by a neighbor. From April 23 to April 27 no physician in attendance. Case transferred to the Eye and Ear Infirmary April 29, *blind*. Physician, Dr. Y, studied at the Baltimore Medical College and graduated at the medical department of George Washington University. He came to Massachusetts in July, 1907, when he failed to pass the examination given by the Board of Registration in Medicine. He was re-examined and registered in the autumn of 1907. He is apparently not a member of the Massachusetts Medical Society.

CASE 3. Child born Oct. 13, 1912. Protargol used at birth. Symptoms observed by the physician Oct. 15 and reported according to law. No trained nurse in attendance; the mother was assisted by a relative. No physician in attendance Oct. 25 to 28. Case transferred to the Eye and Ear Infirmary Oct. 28. Cornea o. d., ulcer and perforation; cornea o. s., hazy and irregular ulcer. Physician, Dr. Z, graduated at Johns Hopkins, 1904, and is a member of the Massachusetts Medical Society.

These cases are luckily unusual in their bad results. But besides these results they have this too usual point in common: no specialist and no nurse was in attendance. Dr. Cheney has ably set forth the specialist's claim.* If we do not quite agree with him, that the specialist's services should be required by law, we may still support the gist of his contention by insisting, where possible, on an ophthalmologist's advice, and in serious cases, on a specialist's constant attendance. And physicians who hesitate here will, I trust, unanimously support four minimum standards:

1. Routine use of the prophylactic at lying-in hospitals and, with few exceptions, in private practice.
2. Prompt birth returns.
3. Absolute adherence to the reporting law which requires immediate notification of the symptoms of ophthalmia neonatorum, or "babies' sore eyes," and
4. Insistence by the health authorities on constant skilled nursing in all but the lightest cases, the specialist's help at the first suspicion of danger, and if this cannot be had in the parents' home, then prompt transfer of the baby, with mother if *possible*, to a hospital where expert nursing and special medical care are constantly available.

Where these standards are not upheld we find case after case of children needlessly and carelessly blinded or handicapped. And how do these dingy tragedies occur? In Kipling's phrase—

> All along o'dirtiness,
> All along o'mess,
> All along o'doin' things rather more or less—

Now doing things "rather more or less" is not what reputable physicians tolerate. I, therefore earnestly trust that, throughout the State, they will one and all uphold these standards, so that blindness from ophthalmia neonatorum may become as rare in Massachusetts as blindness from smallpox.

* Dr. F. E. Cheney, BOSTON MED. AND SURG. JOUR., Jan. 23, 1913.

Clinical Department.

HEMANGIOENDOTHELIOMA OF THE TEMPORAL BONE.*

BY FREDERICK L. JACK, M.D., BOSTON.

PATHOLOGICAL REPORT BY

CALVIN B. FAUNCE, JR., M.D., BOSTON.

M. P. Armenian, 46 years old. Entered the Massachusetts Charitable Eye and Ear Infirmary on December 24, 1911.

He had suffered considerable pain and loss of hearing before applying to the Infirmary for relief, and gave the history of a chronic suppurative inflammation involving the right middle ear and the removal of a polypoid growth about eighteen years ago.

Examination revealed a purulent discharge and growth, filling the middle ear cavity. Profuse hemorrhage followed the removal of a portion of a growth, for microscopic examination. The pain in-

* Read at the forty-fifth annual meeting of the American Otological Society, Atlantic City, June 10 and 11, 1912.

creased and at his next appearance, two days later, he was admitted for operation.

His condition changed slightly. Some redness and swelling of the canal wall, with preauricular tenderness was noticed. No mastoid tenderness.

Microscopic Report.—Rare tumor, exact nature undeterminable, due to insufficient amount of material.

On Dec. 29, the radical operation was performed. The bony cortex was found extremely thick and hard. Deep situation of the antrum and much inflamed. Nothing unusual was encountered, until the middle ear cavity was reached. This was found filled with a growth extending inward and upward, nearly three-quarters of the distance to the median line in the petrous bone. Attempts at the removal were followed by such profuse and uncontrollable bleeding and facial twitching, that further operative interference seemed inadvisable. The radical cavity was treated in the usual way.

Patient comfortable for two days, when the pain returned in the ear, together with headache and rising temperature. Leucocytosis, 14,400. From that date his condition grew increasingly worse. Three days later white blood count was 19,800. Lumbar puncture showed turbid spinal fluid growth of fine streptococci. Death occurred on Jan. 7, 1912, nine days after the operation.

PATHOLOGICAL REPORT.*

Autopsy Jan. 8, 1912, at 11 a. m. Head only. Permission for general autopsy not obtainable.

Body is that of a well nourished man, cold, no rigor. Pupils equal 5 mm. in diameter.

There is an open operative wound in the right mastoid region 6 mm. in length. There has been an exenteration of the right mastoid bone. The bone cavity is bathed in white, creamy pus. Apparent exuberant bluish-red granulations protrude from the internal portion of the cavity and from the middle ear.

On removal of the calvarium the pia is seen to be congested. The sulci are everywhere edematous and markedly purulent. There is no hemorrhage. The cerebro-spinal fluid is purulent. The base of brain is covered with fibrino-purulent exudate. The venous sinuses are free. Roof of tympanum is intact; there is no evidence of extension of the purulent inflammation through the remaining petrous bone or the dura.

Projecting from the posterior surface of the petrous bone is a nodular tumor mass, 19½ mm. by 19½ mm. (Fig I). The tumor projects 8 mm. beyond the inner table, replacing the bone and the dura at this point. The upper margin of the tumor extends over the internal auditory meatus, but does not reach the tentorium. The nodular surface of the tumor is smooth and is reddened and vascularized. It is nowhere adherent to the cerebellum, the opposing surface of which is normal, but for the meningitis.

On sectioning the specimen after decalcification the involvement of the bone is found to be much more extensive than the projecting portion of the tumor seemed to indicate (Figs. 2 and 3). The entire petrous bone is pervaded by the growth, including the labyrinth. The margin of the tumor is fairly sharply defined. The tumor passes entirely through the temporal bone, meeting the soft tissues beneath.

Smears taken from the purulent exudate show streptococci pyogenes.

The whole of the temporal bone, including the tumor and part of sphenoid bone was removed, intact.

One-half of the presenting portion of the tumor was removed and fixed in Zenker's fluid, the remaining part of the tumor and the bone being fixed in Orth's fluid (Miller's fluid plus formalin), to which was added glacial acetic

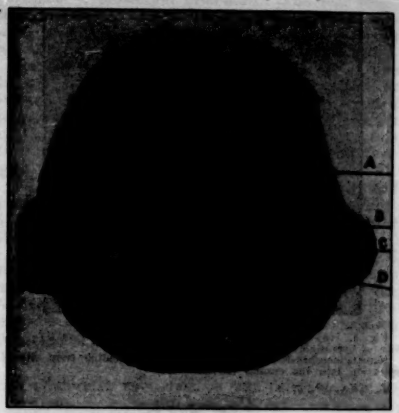


Fig. 1. (a) Second nerve. (b) Fifth nerve. (c) Seventh-eighth nerves. (d) Tumor.

Hemangioendothelioma of petrous bone (outlined in white) presenting in posterior fossa. The upper margin of the tumor involves the internal auditory meatus.



Fig. 2. Hemangioendothelioma of temporal bone (outlined in black). Showing destruction and invasion of the bone by the tumor.

* From Pathological Laboratory of Massachusetts Charitable Eye and Ear Infirmary.



Fig. 3. (a) Portion of tumor presenting in cranial cavity. (b) Site of operation.
Hemangioendothelioma of temporal bone extending from site of operation into the cranial cavity.



Fig. 4. Hemangioendothelioma of the temporal bone, showing proliferating vessels and endothelial cells.

acid to the amount of three per cent. The bone was placed in fresh solution daily for one month. It was then washed in running water for 24 hours and decalcified in a solution of 6% nitric acid in 10% formalin. Some of the tissue was further decalcified in a saturated solution of picric acid. When thoroughly decalcified, the specimen was dehydrated in alcohol and imbedded in celloidin.

The structure of the tumor is best seen in the Zenker fixed specimen, and is strikingly uniform throughout.

The internal surface of the tumor is covered with fibrin and pus; the superficial vessels show numerous purulent thrombi. The infection cannot be traced by direct continuity through the tumor, but that the infection undoubtedly took this course is shown by the infected air cells and medullary spaces passing from the site of the operation and reaching to within a short distance of the inner surface of the growth.

The tumor is made up of actively proliferating small and large vessels, most of which are somewhat larger than capillaries (Fig 4). As a rule the vessels have a very definite connective tissue wall and are lined for the most part by a single layer of endothelial cells. These cells differ from the normal endothelial lining of the vessels, in that they are very large and irregular, and form thick, uneven layers. Certain of the vessels possess more than one layer of these irregular cells. Free, large endothelial cells, many showing signs of degeneration, are found between the vessels.

At the advancing margin of the tumor the tumor cells first appear immediately around the vessels, where they gradually increase in numbers, replacing all the tissue in the medulla, and eventually destroy and replace the bone.

The brain was hardened in formalin for one month and then carefully sectioned. No evidences of metastases were found.

PATHOLOGICAL DIAGNOSIS.

Hemangioendothelioma involving the temporal bone, including the middle and internal ear.

Chronic suppuration of the middle ear.

Operation for exenteration of right mastoid bone.

Streptococcus meningitis by extension through the tumor.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

THE TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 30 AND 31 AND JUNE 1, 1912.

(*Concluded from page 248.*)

DR. V. P. GIBNEY, New York City: We have long since forgotten all about those spindle-shaped femora and tibias. All are of good size now.

DR. J. E. GOLDTHWAIT, Boston, Mass.: All of us are agreed that hip disease is a general disease, and that local treatment is a question of individual experience. Local treatment is certainly no more than protection. I think bone atrophy does not come from disease, but from disuse. At one time I started on a hunt for a lot of cases, that had come to the hospital, in order to see the results of our treatment. I found many that had taken care of themselves and were better than those who were being treated by us. Dr. Morton, of the American Hospital in Paris, said that the results obtained by the direct exposure in a hospital in Switzerland were superior to the sun treatment.

DR. J. F. LORD, Omaha, Neb.: When the condition indicates that the head of the bone is liable to break down, traction is the indication. The amount of traction now used is not adequate to prevent the destructive process and mechanical displacement.

DR. WALLACE BLANCHARD, Chicago, Ill.: It is friction that does the destructive work in the hip joint in the majority of cases. Lateral, as well as longitudinal movement is necessary for this, and I have advised using both kinds of extension to produce traction in the direction of the neck of the femur.

DR. PACKARD: The object of my paper was to emphasize the necessity of treating these cases according to their type and the stage of the disease.

DR. TAYLOR: There are two factors to consider, general and local hygiene. We are appreciating both of these factors in their details and their divergent requirements in the different classes of cases.

THE RESULTS OBTAINED BY THE IMPLANTATION OF SILK LIGAMENTS AND TENDONS FOR POLIOMYELITIS PARALYSIS.

DR. NATHANIEL ALLISON, St. Louis: Artificial ligaments and tendons are more valuable than the older operation for stability, namely, arthrodesis, The author's method is to imitate the pull of normal tendons by silk cords; inserting these in the bone above and below and running the silk tendon in the sheath of the paralyzed tendon. In no case has there been infection, nor has the inserted silk caused trouble. The use of one or another silk artificial ligaments or tendons is preferable to arthrodesis in children.

DISCUSSION OF BARTOW AND PLUMMER, AND PORTER'S PAPERS.

DR. J. L. PORTER, Chicago, Ill.: I want to ask Dr. Allison, what is the objection to boring a hole through the entire tibia, instead of merely in the periosteum.

FURTHER OBSERVATIONS ON THE USE OF INTRA-ARTICULAR SILK LIGAMENTS IN THE PARALYTIC JOINTS OF POLIOMYELITIS ANTERIOR. BY BERNARD BARTOW AND DR. W. W. PLUMMER.

DR. W. W. PLUMMER, Buffalo, N. Y.: During the past year the writers have employed this procedure exclusively in fifty joints. Many of the cases have too recently been operated to be more than suggestive of the improvement that is anticipated. That the procedure has been developed to the point that takes it out of the experimental stage may be confidently stated. While this procedure is not advocated as an exclusive mode of treatment, it is not too much to assert that it may become so in some cases. There is also necessity for careful protection of the joint after the operation for a prolonged period.

DR. ALLISON: There is no objection.

DR. PORTER: Would it not give a stronger support?

DR. ALLISON: Yes, it would.

DR. JOHN DUNLOP, Washington, D. C.: I should like to ask what becomes of the silk when it is sewed into the bone insertion at both ends. As the length of the bone increases, I should think this would cause deformity.

DR. PRESCOTT LE BRETON, Buffalo, N. Y.: Three things have impressed me: first, the little reaction that takes place in the tissues from the introduction of the ligaments; second, there are many conditions that could be relieved in this way; third, the importance of protection afterward. The real thing that takes place is the formation of fibrous tissue along the silk ligaments later. That is what we want, rather than the silk ligaments themselves.

DR. R. W. LOVETT, Boston, Mass.: I should like to ask Dr. Plummer whether he uses braid or twisted silk, and whether the strands are knotted separately or all tied in one large knot; also whether in the cases of simple drop-foot, the ligament is tied to itself or carried across the foot and fastened in a mattress suture.

DR. H. A. WILSON, Philadelphia, Pa.: I have had personal experience with a knot that cannot slip. It is the fisherman's knot. It is possibly better than the ordinary square knot.

DR. PLUMMER: We have used the Corticelli twisted silk. The knot used in the earlier cases was a square one. In the drop-foot illustrated the basket suture goes all the way around, and produces a stirrup ligament. Dr. Wilson's suggestion is an excellent one.

THE INDUSTRIAL EDUCATION OF THE CRIPPLED AND DEFORMED.

DR. H. WINNETT ORR, Lincoln, Neb.: The care of cripples is part of the modern tendency toward the prevention of dependency. Even after adequate hospital care, many orthopedic patients lapse into dependency for want of an occupation. It is necessary that some kind of employment should be selected by competent orthopedic surgeons, who should have subsequent supervision over the crippled and deformed. The ideal arrangement is for the hospital and training school to be combined in one institution. There is a great need for such institutions, only a small number of which are in existence at the present time. Cities and States should make such training in connection with orthopedic hospitals a part of their educational system.

DISCUSSION.

DR. H. TUNSTALL TAYLOR, Baltimore, Md.: We have had the co-operation of both the City and State, regarding the educational training of the children. As soon as they are able, they go to the school room, where we have the regular school system, established by the school authorities of Baltimore. After a child has been with us several months, it goes to its proper grade in the public school. We have a definite selection of occupations suitable for the individual cases.

DR. W. G. STERN, Cleveland, Ohio: I visited the New Jersey Training School for Feeble-Minded and Defective Children, at Vineland. It was wonderful what educational training had done to improve the arm muscles of children with spastic paraplegia, enabling them to learn trades. With a slight change in the plan, this institution might be taken as an example for the conduct of schools for crippled children, in other states.

DR. C. H. JAGER, New York City: It is remarkable what can be done with these cases. We should not consign these poor defectives to the scrap heap before we have tried to do something for them.

DR. ORR: Our children should not be put into direct competition with normal children; they need special educational methods.

The following papers were read as a Symposium and discussed together.

THE ABDOMEN AN IMPORTANT FACTOR IN CHRONIC JOINT AFFECTIONS.

DR. FRANK E. PECKHAM, Providence: Many joint conditions are due to faulty physiology. Intra-abdominal pelvic pressure is an important factor. Putrefactive processes are due to sluggishness of the intestinal functions. There is a sagging of the intestines with atonic walls and flabby muscular development. Thinking surgeons are beginning to realize that only a few cases are benefited by so-called short-circuiting, and that the question is a physiological one. Physic-therapy offers most in the way of permanent benefit. General gymnastics, as in out-of-door sports, are beneficial. Special gymnastics that develop the abdominal muscles are important. Mechanical vibration, properly applied, is a great stimulant to general physiology. The D'Arsonval current and the Morton wave current, applied to the abdomen, stimulate metabolism.

AN X-RAY STUDY OF GASTRO-INTESTINAL FINDINGS IN MULTIPLE ARTHRITIS.

DR. GEORGE R. ELLIOTT, New York City: These plates have been taken from ten selected cases of walking patients afflicted with classical type of chronic polyarticular arthritis. Nine showed ptosis of some portion of the viscera or stasis in the stomach or colon; one showed a markedly dilated stomach; and three, enlarged spleen. From these cases I draw the following conclusions: While the primary etiology of the disease does not lie here, yet we are dealing with important factors which tend to keep up a vicious circle. The original infective toxins, in many cases, soon cease to act, but the abdominal conditions, acquired and otherwise feed the already diseased joints. The physician who does not have a proper examination—x-ray and otherwise—neglects his patient. Most of the abdominal intestinal conditions may be remedied.

SOME CONDITIONS OF THE PATHOGENESIS AND TREATMENT OF TOXIC POLYARTHRITIS.

DR. P. W. NATHAN, New York City: There exists very little definite knowledge of toxic polyarthritis. The general opinion seems to be that there is a definite joint disease as a result of auto-intoxication from the intestinal tract; but in the reports of the cases of undoubted auto-intoxication from this source no mention of joint symptoms is ever made. The conception that a toxic joint condition is the result of intestinal putrefaction, seems to rest on the basis that in a certain percentage of the cases there is indican in the urine. It has been disproved, however, that indican in the urine is of any diagnostic importance. Nor has it been definitely shown that the cases reported as toxic arthritis of intestinal origin have any connection with the intestines.

THE ETIOLOGY OF CHRONIC ARTHRITIS.

DR. LEONARD W. ELY, Denver, Col.: The cause advanced for this group of diseases is still a matter of debate. As we study the history of the subject, we see the infectious theory gradually growing in strength. I believe that all these diseases are infectious. Every bone and joint disease whose exact cause we know is infectious. It is perhaps better for the present to believe that a number of different organisms may be responsible for these diseases, especially as this agrees with clinical evidence. Finally let it be said that in many of these cases of chronic joint disease a distinct source of infection has been found, and in some the removal of this source of infection has been followed by an improvement or a cure of the joint disease.

CASES OF ACUTE AND CHRONIC ARTHRITIS (ACUTE TOXIC ARTHRITIS, ARTHRITIS DEFORMANS, RHEUMATOID ARTHRITIS, ETC.).

DR. MICHAEL HOKE, Atlanta, Ga.: I studied a series of forty-seven cases, extending over fourteen months, without regard to classification. I found running through the whole series, while they were acute, a profound disturbance of metabolism. As the patients got better, their metabolism became nearer to the normal. As we cut down their protein, the excretion of uric acid rose coincidently with improvement in the patients. An ordinary healthy human being, can take care of intestinal putrefaction. The arthritic patient cannot take care of it. It harms him, and should always be avoided.

DISCUSSION ON THE PAPERS OF DRS. PECKHAM, ELLIOTT, NATHAN, ELY AND HOKE.

DR. JOEL E. GOLDTHWAIT, Boston: This group of so-called mechanicians have gone so far as to recognize that the joint symptom is merely a symptom, and not a disease. It seems to me that we have in the abdominal region and the organs inside an explanation of one of the difficulties that the human family has. One of the penalites that we all have to pay for being bipeds, instead of quadrupeds, is a maladjustment of our viscera. It is of no consequence, unless it leads to some disturbance. The anatomic type usually considered normal has been found to be rather uncommon. A series of cases were measured by Dr. Brown and myself in the dissecting room. We found that a great many people have only half of the small intestine. Of course these patients are not well nouriahed. The possibility of organisms traveling up this short intestine from the colon and getting to a point where absorption can take place is, naturally, much increased in such persons.

DR. J. L. PORTER, Chicago: In the St. Luke's Hospital at Chicago, we had a nurse who suffered with a chronic arthritis of the ankle-joint. We found that she had had severe tonsillitis in previous years, a great many years before this time. After going over the case and not finding any cause for the joint trouble we advised operation on the tonsil; and the tonsils were removed. In the center of the larger of the two, there was discovered a little focus of infection. The pathologist made an emulsion of the contents, and injected the ear of a rabbit intravenously with a very little dose of this material. Within a few days the rabbit developed marked enlargement of the wrist joint, which showed chronic articulate changes. At the same time, a professor in Chicago University dies with an acute pyogenic infection, which involved all his joints. At the autopsy, Dr. Davis secured this infective material; and, at the same time that he injected the other rabbit, he injected the veins of the ear of a second rabbit with this material obtained from the body of the professor. The second rabbit developed the same type of infection in all its joints. The infection was of the same type that the rabbit that had died had shown. The changes in both were

identical in type, and were in the same location as in the patients from whom the material had come.

Dr. S. M. Cone, Baltimore: I should like to know whether the internal secretion itself, as a poison, produces the joint trouble, or does so by its action on whatever organism is present. It appears to me that it is the abdominal secretion of hormones which will allow of some abnormal action of the intestinal tract—possibly delayed passage of the intestinal contents, which then allows some of the conditions to which Dr. Hoke has referred to occur, these, in turn, allowing of poison of the joint involved.

Dr. H. P. Galloway, Winnipeg, Can.: Dr. Porter failed to tell us what was the effect on the patient's ankle producedd by removal of the tonsils.

Dr Porter: She was cured.

Dr. C. F. Painter, Boston: A great many infections do not produce any symptoms, and a great many anatomic disarrangements do not give rise to disturbances; and probably a good many internal secretions may be disturbed without causing anything that we can recognize as a clinical disturbance.

Dr. A. H. Freiberg, Cincinnati: I think that we are in danger of falling into a kind of scientific empiricism. Unless we confine our studies more closely to the joint phenomena ourselves, we are likely to be carried into the realm of internal medicine without getting much nearer to the solution of our question.

Dr. J. J. Nutt, New York City: I have noticed this: that in the treatment of tuberculosis joints, those children who were allowed free motion of every joint possible and lived as normal a life as was consistent, did remarkably well in comparison with those treated with more or less confinement. I have also followed out this treatment in some chronic rheumatoid arthritis cases, and a great deal may be said in favor of permitting and encouraging all functions of the body that do not interfere with the correct treatment of the joint.

Dr. G. R. Elliott, New York City: Our studies have shown that the disease we call Still's disease cannot be regarded longer as a distinct disease entity. Still made the claim that this disease occurring in children differed from arthritis in adults; and that in the latter, the enlarged spleen was not found. In four of the ten cases that I reported today, the spleen was much enlarged.

Dr. Nathan: I merely wished to call your attention to the only possible method of solving the problems or progressing in a study of these conditions. Unless we take all our cases and formulate definite clinical entities as nearly as we can, separate the cases, and bring them into connection with definite pathological conditions and clinical conditions, how can we learn anything about these cases? When we come to deal with joints, we are dealing with a mechanical apparatus. It makes very little difference what the process in the joint is, the mechanical conditions are impaired, and the impairment is apparently the same; so that we have difficulty in differentiating the joint conditions *per se*.

Dr. F. E. Peckham, Providence: I feel that there are a very large number of cases due to faulty physiology in the abdominal region somewhere. I think that the time may at last come when most of these joint diseases, with their different pathological conditions, will be found to be due to one main thing. The treatment, of course, must then be applied to that thing, instead of to the end results in the joint.

Dr. L. W. Ely, Denver, Col.: Instead of building up clinical entities and studying their pathology, we should build up pathological entities and mould the clinical manifestations upon them.

STEREO-ARTHROLYSIS—RESTORING MOBILITY IN BONY ANKYLOSIS OF THE JOINTS.

Dr. R. Tunstall Taylor, Baltimore: Ten months ago the writer began laboratory and animal experimentation to determine a liquid, absorbable, animal substance that could be sterilized, injected by syringe between the denuded ends of the bones entering into the proposed new-made articulation and that would immediately solidify in such manner as to prevent contact for some six or eight weeks before absorption. Yellow wax 1, and lanolin 2-5 were the chief substances and proportions determined on after careful study. The advantages of this method, the writer claims, are, primarily, the prevention of the reformation of bony adhesions in properly done cases; the absence of pain, none of the above requiring any anodyne; the speedy, voluntary ability to move the joint as compared with other methods; the absence of fever and suppuration; the hemostatic effect of the wax on the bone ends, absence of hematomata and ecchymosis and the rapidity with which the operation can be done compared with other methods.

ABSENCE OF THE BONY FEMORAL HEADS AND NECKS.

Drs. John Ridlon and H. B. Thomas, Chicago: Absence of the bony femoral heads and necks, supposedly occurring in rachitic children, is a rare condition as proved by the bone pictures taken later in the life of the individual cases where bone salts have been deposited. X-ray pictures taken at different angles will sometimes give evidence of a head and neck in a supposedly congenital absence.

BONE TRANSPLANTATION IN THE TREATMENT OF CLUB-FOOT, PSEUDO-ARTHROSIS, AND POTT'S DISEASE.

Dr. Fred H. Albee, New York City: In cases of club-foot in older children, where adduction of the front part of the foot predominates, a wedge of bone has been ingrafted into the scaphoid, in several cases with most gratifying results. In several cases of pseudo-arthrosis of long standing, a strip of bone about five inches long by one-half by one-third, from the crest of the healthy tibia, has been inlaid into the cortex of the end of each bone fragment, and fixed with heavy kangaroo tendon through drill-holes in the recipient bone fragments. A firm union has been secured in each case, and in one in which a Lane plate had previously failed. In thirty-two cases of Pott's disease, a prismatic-shaped piece of the tibia has been implanted into the spinous processes of the diseased vertebrae, with most striking results.

DISCUSSION OF PAPERS OF DRS. RIDLON AND THOMAS AND ALBEE.

Dr. C. M. Cone, Baltimore: Was it easy to get a protected wound to protect the transplant where Dr. Albee had to cut into the contracted tissue on the inside and put in the transplanted scaphoid?

DR. G. G. DAVIS, Philadelphia: I believe that the present means of treating Pott's disease are so unsatisfactory as to justify our resorting to radical measures. Even after a quiescent stage has been reached, the deformity increases. The disease extends over many years, and frequently breaks out afresh and kills the patient. I am a firm believer in the regeneration of bone in the transplantation of bone in these various processes. I think the procedure is not so serious as to preclude our using it.

DR. JOHN B. MURPHY, Chicago: Dr. Albee's treatment is the first ray of light on the management of spondylitis. It is a prophylaxis against deformity. Putting in a bone is easy to do now. You can apply the treatment of transplanting of bone from the same individual, having contact of bony surfaces with the periosteum, the first time that the child shows stiffness and fixation; and you will have a uniform regeneration of the bone in the transplant. A graft of bone, once transplanted, does not grow in length, but only in circumference. If the periosteum is left on the bone will not spread. The entire rôle played by the graft is that of supporting the Haversian vessels. The graft must be human bone. This treatment is going to be ideal for ununited fractures. Where there is a defect in development, these grafts may be used with effect.

DR. J. T. RUGH, Philadelphia: Does it make any difference which side of the graft is placed to the firm half of the process? There are certain fractures of the neck of the femur that refuse to unite. Would the insertion of a piece of this bone tend to bring about bony union?

DR. B. E. MCKENZIE, Toronto, Can.: I did not notice that anything was said about transplanting bone where there is deficient bone congenitally. Nothing was said by Drs. Ridlon and Thomas regarding complete absence of the femur. I have seen four cases in which there was nothing, except an indefinite nodule at the upper end, to indicate where there was a remnant of the femur left.

DR. RUGH: In a case of congenital absence of the lower two-thirds of the tibia, I substituted the fibula; and it became practically of the same size as the tibia, and is keeping pace with its growth.

DR. T. H. MYERS, New York City: Two of Dr. Albee's x-ray illustrations show the diseased bodies separated by considerably more interval than they would have been before he had straightened them. Our old idea was that these would not heal unless the surfaces came together.

DR. GOLDTHWAIT: I have seen a case in which both fibulae were transplanted to take the place of an absent tibia. There is deformity of the foot, but both legs have developed so that the child runs about and plays without difficulty.

DR. H. P. GALLOWAY, Winnipeg, Can.: I am a firm believer in the principle that if you can bring about ankylosis in tuberculous joints, you will cure the disease. This is not easy in the sacroiliac joint. I should like to ask whether the transplantation of a bone graft into the sacroiliac joint would bring about ankylosis in that joint.

DR. ABRAHAM JACOBI, New York City: I found that my fractures would heal more readily when I fed my patients on phosphorus. My cases of Pott's disease and tuberculous ankles got decidedly better in a shorter time with phosphorus than without it. Tuberculous disease, not only in the lungs, but in the soft parts and in the bones, will do well when systematically treated on arsenic. We should not forget that there are other things besides operations, and that a great deal can be done to strengthen and purify the system for the purpose of making an operation more successful. Arsenic is a semi-specific in tuberculous disease. You will get better results if your patients are in good condition; such as you can bring about by the use of phosphorus and arsenic.

DR. J. B. MURPHY, Chicago: The tendency has been to go entirely away from medication; but we are coming back now to the things that combat tuberculosis in the bone, lung, and every other position, the apex of which is represented by arsenic.

DR. ALBEE: The disadvantages in the use of metal and other foreign bodies are obvious. You cannot trust metal to hold tension in bone. If motion persists in tuberculous disease, it is a danger, and favors a relapse of the condition. The autogenous transplantation of bone is very important, as Dr. Murphy has said. The graft should be placed against the unbroken side. When I first began I placed the cut side next to it; but I have since turned the graft around, split the periosteum, and put the periosteal side against the unbroken spinous process. I should think the plug of bone would be worth trying in the case of fractures of the neck of the femur. I see no reason why the transplant should not be put directly across from the sacrum to the ilium, as this would fix it more simply and with less operative procedure.

CONGENITAL ABSENCE OF THE FIBULA.

DR. PRESCOTT LE BRETON, Buffalo: I wish to report two cases of this rare condition; one of which was operated upon with satisfactory results. Also, to show some photographs and x-rays of these cases.

The following officers were elected for the ensuing year: President, Dr. A. R. Shands, Washington, D. C.; First Vice-president, Dr. J. D. Griffith, Kansas City, Mo.; Second Vice-president, Dr. David Silver, Pittsburgh, Pa.; Treasurer, Dr. G. G. Davis, Philadelphia, Pa.; Secretary, Dr. Ralph R. Fitch, Rochester, N. Y.

The next meeting will take place at Washington, D. C., in May, 1913.

Book Reviews.

The Therapy of Syphilis: Its Development and *Present Position.* By DR. PAUL MULZER, of Berlin; with a preface by Prof. P. Uhlenhuth, M.D., Privy Councillor; translated by A. Newbold. New York: Rebman Company. 1910.

This small volume of 248 pages, including the index, discusses recent advances in our knowledge of the therapy of syphilis. The ground is adequately covered in brief compass. A particular value of the book is an excellent bibliography, preceding a very complete index. The publication is one of many which should appeal particularly to elementary students of the subject.

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NATIONAL INSURANCE AND WORKMEN'S COMPENSATION.

FOR the past year or more we have been watching with attention the contest in England over the British National Insurance Bill, and have speculated with considerable interest on the effect which its operation is likely to have on the medical profession. It seems obvious that the act has met with disfavor among the majority of physicians, and that it will seriously affect not only the quality of medical service to the poor, but also the welfare of the profession in the community.

Meantime there has arisen in our own State, without contest and almost without notice, an analogous, though by no means so serious, situation as a result of the operation of the Workmen's Compensation Act. By the terms of this Act, injured employees are left free to obtain medical care from whatever source they see fit. Some of the employers and insurance companies, abiding by this provision, have not attempted to dictate where or by whom their beneficiaries should be treated, and have paid, without protest, all reasonable charges for their care. Other companies, on the contrary, have successfully brought pressure upon employers to compel the latter to insist that injured workmen should go only to hospitals for treatment.

In a large city, like Boston, with many diverse classes of population, from which the practice of physicians is drawn, this does not work so serious a hardship. But in smaller cities, especially manufacturing towns, with fewer persons of wealth, and the population of which consists in large proportion of factory or mill operatives, the situation becomes critical. Most of the physicians in such towns derive their incomes chiefly from a large amount of hard work among the middle classes for small fees. Therefore, if all cases of occupation injury and sickness among insured workmen are compelled to go to hospitals for treatment, an almost fatal blow is thereby dealt to the practice and livelihood of an important number of our profession. Moreover, some insurance companies even object to paying the usual hospital charges, and it is stated that two large hospitals in Boston have already reduced their fee for insured workmen to a minimum below the actual cost of their care.

The remedy for this situation lies in the hands of the board created for the administration of the Compensation Act, and to its members a straightforward and serious appeal should be made by the medical profession. The hardship done to the general practitioner by the ordinary abuse of hospital charity is enough, without its augmentation and aggravation by this perversion of the purpose of the Act. With the Act itself the physicians have no quarrel, recognizing it as a broad and wise measure for human protection and benefit. But its operation should be so regulated as not to help one class in the community by damaging another. Hospitals are intended to relieve the destitute, not to take from the hard-working, conscientious practitioner the class of self-respecting, modestly self-supporting patients among whom his work chiefly lies. We feel sure that a frank and concerted presentation of the facts in this situation to the responsible authorities will be followed by an equitable adjustment for the welfare of all.

HEREDITARY SYPHILIS AS A FACTOR IN THE PRODUCTION OF GENIUS.*

IT would seem at first that the above heading is paradoxical. Nevertheless it has been a serious study and thesis of more than one well-known writer in France. In effect this thesis is that there exists in numbers of children suffering from heredo-syphilis of the first or second generation especial characteristics which are made manifest by an evident disproportion between the physical development, which is insufficient and not normal, and the intellectual

* Trans. fr. Audrain, "La Chronique Medicale," December, 1912.

development, which is often extraordinary. It is a little dangerous to affirm that syphilis can exercise favorable influence on the intellectual power of many celebrated men and that it may enter partly, at least, in the creation of genius. The foolish and ridiculous ostracism concerning this malady throws around it a shadow which obscures many things pertaining to it. If we observe or "enbloc" the families who are the victims of heredo-syphilis we find special characteristics which are well worthy of study.

That great author and master of irony, Anatole France, wrote somewhere in "Jocaste," paradoxically it is true, this singular phrase, "It is only general paralysis which makes great men." Now we know that general paralysis does not make illustrious men, but syphilis may create a functional cerebral-activity above the normal. It makes the intelligence more active, then too active, up to the point when it slumbers in the veritable excess of its activity. This conception can be seen all around us. The syphilitic influence is certain in the greater part of individuals physically asymmetric, the instant that we find together with this physical stigma an abnormal degree of intellectual activity. The other diatheses all tend to induce more cachexia and are incompatible with the life of productive activity.

Syphilis alone with the chronicity of its lesions, permits the sufferer to support it stoically because it is painless. Many people in this way attain adult age whose infancy was continually a terrible problem, "perpetually snatched from death," continually giving evidence in these cases of the diagnostic and prognostic errors made concerning them. It is not necessary that the infancy of such people should be full of grave maladies or that they should have successfully passed through all the contagious children's diseases. Suffice it that their individual type is out of the common, that their ambitions are not measured by the debility of their bodies. From such beginnings come some men of genius, some in revolt against the existing order of things, agitators and instigators of anarchy as well as wonderful workers, excessive in their work, excessive in their devotion to their chiefs, with the one reservation that these respect the common sentiment of heredo-syphilitics, that is, the exaggeration of their personality.

Professor Gilbert-Ballet recently made some valuable contributions to this subject in connection with premonitory signs of general paralysis. We find in this premonitory condition, first, a rich flow of ideas, then their confusion, then a predominance of ideas connected with the personality,—ideas of fear or envy, isolated or combined. These ideas until the terminal period last during the day but later the height of the ideation is nocturnal, perhaps even not occurring excepting in the dreams or semi-conscious state. In time this hyper-activity of the brain during the night becomes painful and headaches appear, and, little by little, general paralysis becomes fully established. But at what exact moment does general paralysis establish itself? Therapeutic tests can answer us. If warned by such signs and symptoms, the physician can have charge of such cases during the first insomnia, he can modify them. By mercurial treatment he can bring back calm to the patient with an incredible facility.

If it is true that in the final period nothing can be done, it is entirely different at first, and this mental agitation can be modified as well and as quickly as in the case of cerebral gumma. The prophylactic treatment consists in watching over all "excessive genius," and if the physician who under the circumstances has to do what he can in silence, cannot realize the "Therapia sterilisans magna" he at least can maintain the vital equilibrium of his patients and hold in check his mental activities.

RELATIVE MERITS OF THE MILK BILLS.

In last week's issue of the JOURNAL we published an editorial reviewing "The Milk Situation in Massachusetts," presenting the principal provisions of the Ellis bill, now pending before the state legislature, and commenting on the chief arguments against it and in its favor. By way of supplement, it seems fair also to comment briefly on the two other milk bills also at present before the General Court. These are the Meaney bill and the producers' bill.

The Meaney bill merely requires the labelling of all milk with a statement of its age and source. This in itself is excellent, but the bill fails to provide the machinery necessary for its enforcement.

The producers' bill, introduced by certain local milk inspectors, and supported by the Grange, the Cattle Owners' Association, and the Massachusetts State Board of Agriculture, is not directly antagonistic to the Ellis bill. It

confines itself solely to prescribing a bacteriologic test of milk and establishing a bacterial count of 500,000 per cubic centimeter as a maximum permissible standard. This is the figure at present required by the Boston Board of Health. Unfortunately the culture medium specified in this bill is so acid as greatly to retard the growth of bacteria and thereby lower all counts. Moreover, the mere provision of a uniform bacterial count, though desirable, would not at all replace, or suffice, without an adequate and efficient system of general inspection.

Both these bills, therefore, if duly amended, might well be passed as adjuncts to the Ellis bill. The latter, however, contains the really important essentials for the establishment of a suitable system of state supervision and control of the milk supply.

ROBERT SCOTT AND HIS COMRADES.

Within the past week there has come to the knowledge of the world an act of valor which will stand forever on the annals of mankind; one of those acts which from time to time, and from diverse sources, arise to give the world assurance of its men. The tragic death of Captain Robert Scott and his comrades, on the return from their successful expedition of discovery to the South Pole, has stirred all who have read of it with a realization of its significance. There are those who will say that the end for which these men sacrificed their lives was not worthy of the cost, but none will deny that the way in which they sacrificed them was worthy of the best that is in humanity. The record of their journey and of their death, found on Scott's body, is one of the documents which make the history of the human race. Sublime, too, was the solitary heroism of Oates, who realizing himself a hindrance to his companions, who he knew would not forsake him, forewent even the scant comfort of the tent's shelter and the sleeping-bag to die in, and chose to go out to die alone in the drifts of the Antarctic blizzard, that they might have the least possible better chance of escape to safety. He and they knew, as the Scots knew at the siege of Lucknow, that so long as any of their countrymen lived, the effort to relieve them or to ascertain their fate would be made. But even in the uncertainty of its success, they died in the secure consciousness of duty done and in fearless confidence that the world would care for those whom they left unprovided for to its protection. Like those who, a fortnight later, went down with the *Titanic*, they

> "Stood up each, when the Lord God called,
> Gentlemen unafraid."

Such a display of heroism, surrounded with the accidental glamor of romance, seems unapproachable by those in common life. Yet the best of its lessons is, perhaps, that the courage of daily life is no different in kind, though less in measure. The unconsidered heroism of Sir George Turner, dying now in England, by inches, of leprosy, caught in the simple discharge of duty in Cape Colony, is of the same sort. Members of our profession may be deemed fortunate that they have more opportunities for the display of such valor than do others not so constantly on the battle-line between life and death; yet the doctor's acts of courage deserve no more credit than the unnumbered deeds of countless other men. It may fall to the lot of none in our generation to perform so conspicuous a deed of gallantry as that silent achievement of Scott and his comrades. Perhaps the end for which they died was fruitless; yet it served to demonstrate, as did the manner of their death, the superiority of man's spirit to the circumstances of his environment, and that alone was not without its value. And it is the contemplation of the example of such lives and deaths as theirs that helps to inspire us, when the hour of our test comes unsuspected, to act in a fashion befitting the leadership of their intrepid spirits, of the souls which to the drum-beat of the centuries immortally go marching on.

MEDICAL NOTES.

The Cost of Public Health.—In a statement recently forwarded by the Secretary of the Treasury to the United States Senate, it is made known that the annual cost of maintaining the health division of the War Department is $5,714,090; that of the Navy Department, $3,730,522; that of the Department of Agriculture, $3,899,202; and that of the Panama Canal, $1,620,391, a total of $19,800,086. The entire health service of all these departments employs 15,632 persons.

Sterilization of Criminal Defectives in Michigan.—Report from Lansing, Mich., states

that on Feb. 12 the Michigan House of Representatives passed the O'Dell bill, providing for the sterilization of mental defectives and degenerate criminals in state institutions.

A CENTENARIAN.—Levi Shoemaker, who died last week at Berlin, near Frostburg, Md., was locally reputed to have been born in 1811. He is said never to have used eyeglasses and to have maintained his activity until within a few weeks of his death.

LONDON DEATH-RATES IN DECEMBER.—Statistics recently published show that the total death-rate in London in December, 1912, was 16.4 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 25.2 in Shoreditch, a crowded eastern slum, and the lowest was 11.3 in Wandsworth, a populous suburb on the south.

TWO NOTABLE ADDRESSES.—On Thursday of last week, Feb. 13, Dr. D'Arcy Wentworth Thompson, professor of natural history at University College, Dundee, delivered the Herbert Spencer lecture on "Growth and Form." On Friday, Feb. 14, the Hunterian oration was delivered before the Royal College of Surgeons by its president, Sir Rickman Godlee.

ANTITYPHOID INOCULATION IN THE FRENCH NAVY.—Report from Paris on Jan. 30 states that in a recent communication to the French Academy of Medicine, Dr. Chantemesse, reviewing the history of antityphoid inoculation, called particular attention to the experience of the French navy. Antityphoid inoculation was first authorized in the navy in April, 1912. Since that time there have been 5,421 cases of typhoid fever among 67,000 uninoculated sailors, and not a single case among 3,107 who were inoculated. Accumulating experience seems uniformly to corroborate the great value and efficacy of this new measure of preventive medicine.

BOSTON AND NEW ENGLAND.

RECENT HOSPITAL BEQUESTS.—The will of the late Martha H. Brooks, of Brookline, which was admitted to probate at Dedham, Mass., on Jan. 22, creates a residual trust fund of about $100,000, from which ultimately about $10,000 each will revert to the Massachusetts Charitable Eye and Ear Infirmary, the Boston Instructive District Nursing Association, and the Massachusetts Homeopathic Hospital.

The will of the late Mrs. Samuel Newell Brown, who died on Jan. 18, was filed recently in the Suffolk probate court. It contains a bequest of $250,000 to the New England Baptist Hospital, Roxbury, for a new building to be known as the Samuel Newell Brown Memorial Hospital. It also provides for legacies of $60,000 to the Brockton (Mass.) Hospital, $10,000 to the Cullis Home for Consumptives, Dorchester, and $5000 to the Home for Crippled Children, Boston.

By a recent decision of the Supreme Court, a bequest of $60,000 in the will of the late Sarah E. Cazenove, who died in 1870, has at last been awarded to the Massachusetts General Hospital.

The will of the late Frances H. How, of Haverhill, Mass., contains a bequest of $500 to the Hale Hospital, Haverhill.

The will of the late Harriot Ware, of Brookline, Mass., which was filed recently in the probate court at Dedham, Mass., contains a bequest of $2,000 to the Perkins Institution and Massachusetts School for the Blind.

A CENTENARIAN.—Mrs. Mary Maynard, who died on Feb. 5 at Nashua, N. H., is said to have been born on Oct. 25, 1811, in Derchere, Quebec. She is survived by four aged children, forty-six grandchildren, and fifty-seven great-grandchildren.

THREE LIVING CENTENARIANS.—Mrs. Marie Greca, of Stamford, Conn., is said to have been born on Feb. 2, 1807, in Italy. Her present health is excellent.

Mrs. James R. McGary, of South Scituate, Mass., who is said to have been born on Feb. 2, 1811, at Barnstable, Mass., celebrated recently her supposed 102d anniversary. Her health is excellent. She is a widow and has three living daughters.

Morris D. Shimelovich, of Brockton, Mass., is said to have been born on Feb. 8, 1811, at Vilna, Russia.

STERILIZATION BILL VETOED IN VERMONT.—Report from Montpelier, Vt., states that on Jan. 31 Governor Fletcher vetoed a bill, which had passed both houses of the state legislature, pro-

viding for the sterilization of criminal defectives.

Opium Raid in Providence.—Report from Providence, R. I., states that on Saturday of last week, Feb. 8, an extensive raid was made by United States customs inspectors on four Chinese opium resorts in that city. Twelve complete smoking outfits and over $12,000 worth of the drug, much of it smuggled, were seized, and 25 Chinese were arrested on the premises.

Officers of Boston Dispensary Staff.—At the recent annual meeting of the medical staff of the Boston Dispensary, Dr. L. Vernon Briggs was elected president for the ensuing year, Dr. John B. Adams vice-president, and Dr. Elmer W. Barron secretary.

Rules for Protection of Food-Stuffs.—The Boston Board of Health has recently adopted a set of rules, approved by the Massachusetts State Board of Health, requiring marketmen to keep products offered for sale cleanly covered to protect them from flies, dust, and animals.

"The rules also require that stalls in which such food or products are stored or exposed for sale shall be kept in clean and wholesome condition; that all persons handling such products shall wear clean outer garments and shall be free from all contagious or infectious disease. The use of unclean paper for wrapping of articles of food is prohibited.

"Peddlers of food-stuffs will be required to keep on their carts a water-tight receptacle for the waste, and such waste must be disposed of so as not to cause a nuisance."

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 7, 1913, is 203, against 233 the corresponding week last year, showing a decrease of 30 deaths, and making the death-rate for the week 14.39. Of this number 97 were males and 106 were females; 195 were white and 7 colored; 128 were born in the United States, 75 in foreign countries, and 0 unknown; 46 were of American parentage, 133 of foreign parentage, and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 45 cases and 5 deaths; scarlatina, 35 cases and 0 deaths; typhoid fever, 6 cases and 2 deaths; measles, 190 cases and 2 deaths; tuberculosis, 60 cases and 18 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 40, whooping cough 3, heart disease 35, bronchitis 6. There were 6 deaths from violent causes. The number of children who died under one year was 45; the number under five years 55. The number of persons who died over sixty years of age was 51. The deaths in hospitals and public institutions were 74.

Included in the non-residents were the following, brought to Boston for treatment: Scarlet fever, 2 cases; diphtheria, 3 cases and 1 death.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 11, 1913, are as follows: Diphtheria, 50; scarlatina, 32; typhoid fever, 6; measles, 189; smallpox, 0; tuberculosis, 61.

The death-rate of the reported deaths for the week was 16.31. Non-resident cases are included in the total cases.

NEW YORK NOTES.

Committee on Publicity and Education—A committee on publicity and education, composed of officials of the department, has recently organized in the City Health Department which will have the supervision of all publications of the department, the development of a reference library, and the establishment of a permanent exhibit, to be open to the public; and, in general, the educational activities of the department will be directed by the committee.

Washington Irving High School—A class of 400 was graduated on January 30 at the new Washington Irving High School. This school is the largest in the world in point of numbers, having 5,000 girls, and it is claimed that the building, which is a model of its kind and equipped in the most approved manner for the health and convenience of the pupils, is also the finest. It stands on Irving Place, extending from 16th to 17th Streets, and is directly opposite the quaint old house where Washington Irving used to live. The Municipal Art Society has been collaborating with the Board of Education in the decorations of the building, which have not yet been completed, and it is designed to make it in every way a fitting memorial of the great author whose name it bears.

Harriman Research Laboratory—The Harriman Research Laboratory was incorporated at Albany on January 31, and among the Incorporators are Drs. W. C. Lyle and L. R. Morris.

This institution was established in 1910, and is maintained by Mrs. E. H. Harriman for the study of chemical problems connected with disease. It owns and operates a building, with a thoroughly equipped plant, on the grounds of Roosevelt Hospital, and has a working staff of four chemists and three assistants. Up to the present its work has consisted of the investigation of the action of ferment acid on the human system from the standpoint of the comprehension and treatment of various diseases.

HOSPITAL BEQUESTS.—The appraisal of the estate of the late A. W. Openhym of New York, who died in April last, shows bequests of $40,550 each to Mount Sinai Hospital, the German Hospital and Dispensary, and Columbia University. The bequests to the hospitals are for the purpose of maintaining free wards, and that to Columbia, to be known as the Openhym Research Fund, for cancer research work.

APPOINTMENT OF DR. DOTY—Dr. Alvah H. Doty, formerly health officer of the port of New York, has been appointed medical director of the employees' benefit fund of three large telephone and electric companies. In announcing this appointment, the president said:

"So far as practicable, we shall seek the early detection of diseases, particularly those that are communicable, and notably tuberculosis, and arrange for their prompt removal, care and treatment. This not only offers a far better chance for the patient's recovery, but also protects other employees. Preventive measures will also include sanitary conditions in offices and workshops, such as proper lighting, good air, pure water, safe plumbing and the discontinuance of articles in general use which are inclined to be agents of infection. By various plain and practical methods employees will be instructed in hygiene and sanitation, and we hope that the information thus gained will redound to the home and to the public generally."

HARVEY LECTURE—The seventh lecture in the current series before the Harvey Society was given on Saturday evening of last week, Feb. 15, at the New York Academy of Medicine by Dr. Theodore C. Janeway, of Columbia University, on "Nephritic Hypertension."

IMMUNIZATION AGAINST TYPHOID FEVER.—The division of communicable diseases of the department of health of the City of New York, has recently issued a circular of information regarding immunization against typhoid fever. The following extracts from this document seem pertinent and instructive:

"The first immunizations against typhoid fever, in man, were made by Pfeiffer and Kolle, but to Wright is due the credit for the introduction of the systematic practice of immunization on an extended scale, and as before seated, its value is now thoroughly established.

"Official committees appointed by the Governments of the United States, England, Germany and France have investigated the matter and all unite in recommending the employment of immunization as a rational and practical method of diminishing, by a sensible proportion, the frequency and gravity of typhoid fever in all individuals whose profession, or whose usual or accidental methods of alimentation, or daily or frequent association with the sick or with typhoid carriers, expose them to direct or indirect contagion by the bacillus of typhoid fever.

"The procedure has been widely used, especially in armies and the conclusions of the present day are based on the results of more than 100,000 immunizations.

"The following conclusions are accepted by practically all authorities:

"1. The practice confers a notable immunity against typhoid infection.

"2. It reduces by three quarters the case incidence of typhoid fever in groups of individuals submitted to this method of immunization.

"3. Under similar conditions, typhoid fever occurring in immunized persons has approximately one-half the fatality of typhoid cases in persons not so protected.

"4. Typhoid fever thus is less apt to occur, and when it does occur, runs a milder course among the sick who have been immunized than among those who have not.

"The probability of the occurrence of a reaction and its nature should be explained to the patient. The injection causes some pain which quickly subsides. After the lapse of several hours a local reaction may develop, consisting of a red, tender and edematous area several inches in diameter. Sometimes the reaction is more extensive and severe. The lymph glands near the site of injection may become enlarged and tender, and constitutional symptoms may develop. The latter consist, in most cases, of headache, malaise, and a rise in temperature. A severer reaction than this is met with in less than in one per cent. of those injected. In any event, neither the local nor general reactions should cause alarm, being of no importance except for the discomfort caused. The general reaction seldom lasts over 24 hours.

There is no direct relation between the degree of the reaction and the amount of immunity conferred."

Current Literature.

MEDICAL RECORD.

FEBRUARY 1, 1913.

1 KNOPF, S. A. *Some Newer Problems and Some Newer Phases of the Anti-Tuberculosis Warfare in the United States.*

2. FISCHER, C. S. *Remarks on the Gastric Motor Functions.*

3 WILE, I. S. *Hygiene for the American Child.*

4 *ANDRESEN, A. F. R. *The Clinical Examination of the Feces.*

4. Andresen emphasizes the value of investigating the intestinal contents, summing up the kinds of information which can be thus gleaned about the patient, and suggesting an admirable outline for routine examination of the stools. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 1, 1913.

1. BROWN, L. *The Curability of Cervical Cancer of the Uterus.*

2. KNAPP, M. D. *The Newer Teachings of Diseases of the Gastro-intestinal Canal.*

3. DYER, I. *Medical Education: An Unsolved Problem.*

4. *JOHNSON, W. N., AND WATT, C. C. *Typhoid Fever; Its Milk Free Treatment.*

5 POMEROY, J. L. *Pulmonary Tuberculosis and Peripheral Nervous System.*

6 SOMERSET, W. L. *Scarlet Fever.*

7. HARBRIDGE, D. F. *Prescribing Glasses.*

8. BALLENGER, E. G., AND ELDER, O. F. *Mastotomy.*

9. KAUFMAN, B. *A Case of Apoplectic Malaria.*

4. Johnson and Watt report in detail 65 cases of typhoid fever treated at the Germantown Hospital and fed on a milk-free diet, which they consider largely responsible for the good results obtained, especially the low percentage of diarrhea, distension, hemorrhage and perforation. The diet consisted of broths, soups, gruels, gelatin, eggs, milk sugar and butter. Milk was absolutely eliminated except in the convalescent stage. There were four deaths in the series. [L. D. C.]

JOURNAL OF EXPERIMENTAL MEDICINE.

JANUARY 1, 1913.

1. MANWARING, W. H. *The Effects of Subdural Injections of Leucocytes on the Development and Course of Experimental Tuberculous Meningitis.*

2. CARREL, A. *Artificial Activation of the Growth in Vitro of Connective Tissue.*

3. MCCRUDDEN, F. H., AND FALES, H. L. *The Nature and Origin of the Nitrogenous Compounds in the Feces of Infantilism.*

4. MCCRUDDEN, F. H., AND FALES, H. L. *The Cause of the Excessive Calcium Excretion Through the Feces in Infantilism.*

5. *WATSON, E. M. *The Negri Bodies in Rabies.*

6. FOOT, N. C. *The Growth of Chicken Bone Marrow in Vitro and Its Bearing on Hematogenesis in Adult Life.*

7. JOBLING, J. W., AND BULL, C. G. *Studies on Ferment Action.*

8. *PEABODY, F. W. *Studies of the Inorganic Metabolism in Pneumonia with Especial Reference to Calcium and Magnesium.*

9. SWIFT, H. F. *The Absorption of Arsenic Following Intramuscular Injections of Salvarsan and Neosalvarsan.*

10. NOGUCHI, H. *Cultivation of Treponema Calligyrum (New Species) from Condylomata of Man.*

11. CLAYPOLE, E. J. *On the Classification of the Streptothrices, Particularly in Their Relation to Bacteria.*

5. Watson believes from a detailed study of the types and phases of the Negri bodies in rabies that these bodies are definitely protozoan parasites, and describes two phases that seem to be constantly cyclic in their development.

8. Peabody finds that during pneumonia the metabolism of inorganic substances deviates markedly from the normal. Chlorine, sodium and calcium tend to be retained in the body, while potassium and magnesium tend to be excreted normally or in excess. During the period of retention, the chlorine content of the blood is distinctly lower than normal, but the skin is shown to play no part in the chlorine retention. [H. I. L.]

THE LANCET.

JANUARY 18, 1913.

1. *MCCARRISON, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lecture I.*

2. *WHITE, W. H. *A Clinical Lecture on Myxedema.*

3. GREENWOOD, M. *On Methods of Research Available in the Study of Medical Problems, with Special Reference to Sir Almroth Wright's Recent Utterances.*

4. CHAPPLE, H. *The Treatment of Pelvic Inflammations by Auto-Inoculations.*

5. WRIGLEY, P. R., AND MORITZ, M. *Acute Intestinal Obstruction Due to Volvulus of the Cecum.*

6. THOMSON, E. *Ocular Myoclonus.*

7 ATKEY, O. *A Case of Tetanus Treated by Intravenous Injections of Paraldehyde and Copious Injections of Normal Saline Resulting in Cure.*

8. WEBER, F. P. *Non-syphilitic Arteritis Obliterans ("Thrombo Angeitis" of Leo Buerger), with Intermittent Claudication of the Left Lower Extremity.*

9. LEIPER, R. T. *Gapes in Man, an Occasional Helminthic Infection and a Notice of Its Discovery by Dr. A. King in St. Lucia.*

10. KEITH, A. *History and Nature of the Napoleonic Specimens in the Museum of the Royal College of Surgeons, England.*

1. McCarrison in the first of the Milroy lectures on endemic goitre, discusses its distribution, geographically and according to race, predisposition, occupation and social status. It prevails with different degrees of intensity in different countries, and in different parts of the same country; it has made its appearance in many places where it was formerly unknown. It prevails especially in rural districts; it may disappear almost entirely from a given locality. It seems to occur most frequently during and after

the wet or rainy season. It is apt to develop in six weeks to three months in an individual after arriving at a goitrous locality. It affects mules, horses and dogs, as well as human beings. It is more common in females than in males. There seems to be no doubt that water, unboiled and unfiltered, contains the causative agent.

2. White discusses myxedema in an interesting and instructive paper. He describes its symptoms, reviews the discovery of the disease and investigations of the functions of the thyroid gland, discusses the relation of the pituitary gland to myxedema, the value of thyroid treatment, and the importance of recognizing early cases. [J. B. H.]

British Medical Journal.

January 18, 1913.

1. *Carwardine, T. *Pericolitis.*
2. Barker, A. E. *A Lecture on Some Points About Drainage of the Abdomen under Various Conditions of Inflammation.*
3. Spencer, W. G. *Appendicostomy in Place of Colostomy for Relief of Obstruction Caused by Irremovable Cancer of the Rectum and Colon.*
4. Malcolm, J. D. *Gangrene of the Vermiform Appendix and of a Coil of Small Intestine; Operation; Recovery.*
5. Hughes, G. S. *Two Cases of Gangrenous Appendicitis with Unusual Histories.*
6. *Mutch, N., and Ryffel, J. H. *The Metabolic Utility of Rectal Feeding.*
7. Oliphenshaw, R. *Renal Calculus in Childhood.*
8. *Black, E. H. *The Qualitative and Quantitative Effect Observed on Polymorph Neutrophile Leucocytes in the Treatment of Tuberculosis by Tuberculin.*
9. Davis, E. D. *Observations on Suspension Laryngoscopy, with the Notes of a Few Cases.*
10. Fuller, A. L. *Recovery after Taking 88 Grains of Corrosive Sublimate.*

1. In a short article Carwardine considers pericolitis due to a wandering kidney, appendicitis and cholecystitis. He cites numerous illustrative cases and discusses operative procedures.

6. Mutch and Ryffel conclude from their experiments that while starch, fat and proteins are very little absorbed when introduced by rectum, dextrose is fairly well absorbed. A 6% solution is best; 15 oz. may be given four times a day if the rectum is thoroughly washed with salt solution once daily. This equals 100 grains or more of dextrose supplied to the body.

8. Black shows that by means of tuberculin treatment the leucocytes are increased quantitatively and also qualitatively in that the proportion of mesenteric forms whose phagocytic power is large, becomes greater. [J. B. H.]

The Indian Medical Gazette.

January, 1913.

1. Crawford, D. G. *History of I. M. S. Courts Martial.*
2. Greig, E. D. W. *Recent Research on Cholera in India.*
3. *Scott, L. B. *Pyorrhea Alveolaris in Sylhet Jail.*
4. Sladen, R. J. L. *An Efficient Sterilizer for Use in Small Towns.*
5. Mackie, F. P. *An Improved Method for Staining Negri Bodies.*

3. From an extensive statistic study of pyorrhea alveolaris among inmates of a Bengal jail, Scott finds that the disease is almost universal among native Indians, that it is more prevalent in hot, damp weather, that Hindus are more subject to it than Mussulmans, and that it is more probably the result than the cause of general poor health. He finds no causal relation between it and scurvy, dysentery, rheumatoid arthritis, appendicitis, or peptic ulcer. He believes that after its earliest stages pyorrhea is incurable, though its more troublesome symptoms are capable of amelioration. [R. M. G.]

Wiener Klinische Wochenschrift.

No. 3. January 16, 1913.

1. Kürt, L. *On Dorsal Auscultation of the Heart and Vessels.*
2. Fernau, Schramek, and Zarzycki. *Concerning the Effect of Induced Radioactivity.*
3. *Zubrzycki, J., and Wolfsgruber, R. *Contribution on Combatting Anemia by Intramuscular Injection of Defibrinated Human Blood.*
4. Finsterer, H. *Rare Complications after Herniotomy in Strangulated Inguinal Hernia.*
5. Pflanz, E. *The Hydrotherapy of Renal Disease.*
6. Bachstez, E. *The Local Treatment of Parenchymatous Keratitis with Neosalvarsan.*
7. Deutsch, H. *Alcohol and Homosexuality.*

3. The authors, stimulated by similar work at the Marburg University Frauenklinik, studied in detail the effect of the intramuscular injection of defibrinated human blood, in six patients suffering from severe anemia following prolonged uterine hemorrhage from different causes. They obtained the blood by puncturing a vein in the arm of healthy, Wassermann-negative patients, defibrinated it by shaking with glass-pearls, and injected it into the gluteal region of the recipients, in doses of 20 or 30 cm., 3 to 5 doses being given over a period of two to four weeks. They watched the Sahli hemoglobin, the red and white count, and the general condition of both donor and recipient.

The effect on the donor was a slight reduction in hemoglobin and in red count, with a negligible variation in white count. The effect on the recipient was a marked increase in hemoglobin, together with a marked increase in red and white cells, always with a parallel improvement in general condition.

The extent of this improvement in the two most successful cases was as follows: A carcinoma of the cervix had five injections, 140 cm. in all, in approximately four weeks. Hemoglobin increased from 25% to 35%; red count increased from 1,500,000 to 3,800,000; white count increased from 3,200 to 5,400. This in the face of a very severe hemorrhage while under treatment. The other case had 80 cm. total injection, and in two months the hemoglobin increased from 20% to 45%, red cells from 1,640,000 to 4,304,000; white cells, 2,200 to 4,400. Whether this increase in hemoglobin and blood cells is due directly to the injected blood, or reflexly by stimulation of the blood forming organs, the authors are not prepared to say.

They feel that this procedure is absolutely safe if done under strict aseptic precautions, that it is painless and simple, which attributes they think cannot be claimed for transfusion; and they consider the reported cases prove it of value. [F. S. K.]

Archiv für Klinische Chirurgie.

Vol. 100. Part 1.

1. Von Eiselsberg. *Operations for Tumor of the Hypophysis.*
2. Bier, A. *Observations on Bone Regeneration.*
3. Schmieden, V., and Erkes, F. *Clinical Studies in the Process of Regeneration in the Hip-joint Following Resection.*
4. *von Haberer, H. *Unilateral Closure of the Pylorus.*

5. *Härtel, F. *Local Anesthesia and Injection Treatment of the Gasserian Ganglion.*

4. Von Haberer writes in favor of "one-sided" closure of the pylorus, as advocated by von Eiselsberg and by Doyen. In this operation, which is intended for use in cases of duodenal ulcer, ulcer of the pylorus, and ulcer of the pyloric end of the stomach, the stomach is cut across proximally to the lesion. Both the severed ends are then closed, and a gastroenterostomy done. Before cutting the stomach, the great vessels along each curvature are ligated on either side of the proposed line of incision, thus reducing the likelihood of hemorrhage. von Haberer has done this operation 24 times, with no immediate mortality and with good functional results. The advantages which he says it possesses are its simplicity, the certainty that hemorrhage will cease and perforation will be stopped, and the prevention of cancerous degeneration within chronic ulcers. Where perigastritis exists, it is quieted much more rapidly by this operation than by simple gastroenterostomy.

5. Härtel's article is an exhaustive review of the anatomy of the skull with reference to the nerve distribution and route by which the important nerve trunks and ganglia may be reached. Besides injecting the Gasserian ganglion as a remedy for neuralgia, he has done so to produce anesthesia under which operations upon the jaws, tongue, eye ball, nose, etc., may be performed. Novocain-Suprarenin is used and gives an anesthesia lasting an hour and a half. [G. G. S.]

ANNALES DE L'INSTITUT PASTEUR.

NOVEMBER 25, 1912.

1. *Metchnikoff, E., and Wollman, E. *Some Effects of Intestinal Intoxication.*
2. Bertrand, G. *The Part in Agriculture of Minute Chemicals.*
3. *Burnet, E. *The Virulence of the Tubercle Bacillus and So-called Attenuated Tuberculosis.*
4. Lafont, A. *Trypanosome of the Conorhinus Nebrofasciatus Inocuable into the Rat and Mouse.*
5. Dubourg, E. *Researches upon the Monic Ferment.*
6. Bertrand, G., and M. et Mme. Rosenblatt. *Investigations upon the Hydrolysis of Saccharose by Different Acids in the Presence of the Increase of Aspergillus Niger.*

1. In this article Metchnikoff and Wollman bring up to date the work on intestinal intoxication. In the first part they take up a discussion of the different theories in regard to the relation between old age and digestive products. Their reviews consist chiefly of French and a few German works. They do not mention the careful work on intestinal flora of Kendall. Next they take up the relation between the kind of diet and the production of intestinal poisons of the aromatic series. They show that the diet is only one factor in the production of intestinal poisons, and that the more important factor is the intestinal flora. They then take up a discussion of the different bodies produced by the different types of intestinal bacteria. They feel that the products of proteid putrefaction are not the only factors which have poisonous effect upon absorption from the intestines, and researches along this line are being carried out in their laboratory.

3. In a study of 35 cases of tuberculosis of the joint, bone, and skin, Burnet has not found a single case of bovine tuberculosis. The bacilli from these cases have shown as much virulence towards guinea-pigs and monkeys as tubercle bacilli from sputum, and in some cases more. If a tuberculosis is not severe it does not mean that the virus has been attenuated. Attenuated tubercle bacilli exist but are very rare, and so far always occur in skin tuberculosis. The virulence of the tubercle bacillus varies in nature and experimentally. The quality of the bacillus is as important as the quantity in regard to the severity of the disease. The tuberculous flora is quite extensive and a so-called subflora exists, the rôle of which is undetermined. These points suggest the possibility of prophylactic inoculations. [C. F., Jr.]

THE SEI-I-KWAI MEDICAL JOURNAL.

JANUARY, 1913.

1 *Takiki, Y. *Erysipelas.*
2. Higuchi, S. *Experiments on the Transplantation of Japanese Mouse Carcinoma.*
3. Soto, N., and Fukada, S. *Two Cases of Pregnancy in Myoma of the Uterus.*
4 Kamada, and Tomenni, S. *Report on the Results of Measurements of the Bony Pelvis and the External Genitals in the Living.*
5. Sewaki, H. *A Study on the Method of Increasing the Body Weight.*

1. Takiki presents a study of sixteen cases of surgical erysipelas treated with streptococcus vaccine. Though some of these cases were very serious, none died. He believes that in early cases the course of the disease was shortened, and that this method is of great value in the treatment. Autogenous proved more efficacious than stock vaccines. [R. M. G.]

Miscellany.

MEETING OF THE COUNCIL OF THE MASSACHUSETTS MEDICAL SOCIETY, FEBRUARY 5, 1913.

A stated meeting of the council was held at the Boston Medical Library, February 5, 1913, at twelve o'clock noon, the president being in the chair, and six presidents of district Societies and seventy-two councillors being present.

The records of the last meeting were read and accepted.

Dr. Homer Gage called attention to the desirability of revising the by-laws, a matter which had been advocated previously by the president at the October meeting and by the outgoing president at the annual meeting, last June. Dr. Gage moved, and it was

Voted, That a committee of five be appointed by the chair to revise the by-laws, and that the proposed revision be printed and distributed to every Fellow with the call for the annual meeting, in May.

The president appointed the following committe: H. Gage, Worcester; J. A. Gage, Lowell; J. W. Bartol, Boston; H. Cabot, Boston; W. L. Burrage, Boston.

Upon nomination by the president, the following delegates were appointed:—

To the American Medical Association for two years; H. Cabot, Boston; J. B. Blake, Boston, Alternate; C. P. Hooker, Springfield; H. E.

Sears, Beverly, Alternate; G. Osgood, Rockland, Alternate.

To the annual meetings of state medical societies: Maine—G. Z. Goodell, Salem; H. P. Stevens, Cambridge. New Hampshire—H. W. Manahan, Lawrence; G. S. Allen, Lawrence. Rhode Island—A. R. Crandell, Taunton; E. Washburn, Taunton. Connecticut—F. B. Sweet, Springfield; G. H. Janes, Westfield.

To conference on Medical Education and to Association of American Medical Colleges at Chicago: H. C. Ernst, Jamaica Plain.

To be a member of the National Legislative Conference of the American Medical Association at Chicago: C. F. Withington, Boston.

Upon nomination by the president, the following were appointed to audit the treasurer's accounts: C. J. White, Boston; D. N. Blakely, Brookline.

Dr. Goss for the Committee on Membership and Finance reported as follows:

The Committee on Membership and Finance respectfully report and recommend

That the petitions of ten Fellows to change their district membership be granted;

That the resignations of two Fellows be accepted;

That dues to the amount of $10 be remitted to one Fellow;

That four be placed on the retired list; and

That eight be deprived of the privileges of membership for non-payment of dues.

Voted, To accept the report and adopt its recommendations.

The secretary read the report of the committee appointed to consider the petition of one Fellow to be restored to the privileges of fellowship.

Voted, To accept the report and adopt its recommendations.

In the absence of the chairman, Dr. J. F. Burnham presented a revised list of medical schools and colleges for the purposes set forth in By-law 1, and the list was adopted unanimously.

The committee appointed to consider the relations of the Massachusetts Medical Society to the American Medical Association and other state medical societies reported through Dr. Arnold, who outlined his experiences at the meeting of secretaries of State Medical Societies at Chicago, last October, and sketched the resolutions which were passed at that time. He stated that his committee wished to make a preliminary report, and presented to the meeting the following four resolutions with explanations as to their purport:—

1. *Moved,* That the fiscal year of the society begin on the first day of January of each year on and after January 1, 1914, all resolutions or votes to the contrary being hereby annulled.

2. *Moved,* That the assessment for the period from April 15, 1913, through December 31, 1913, shall be $4.00

3. *Moved,* That after January 1, 1914, the first assessment paid by Fellows who are admitted to the society following the November examinations shall be considered as including the annual assessment for the succeeding fiscal year. This privilege shall be extended to those fellows admitted as a result of the examinations in November 1913 on the payment of an assessment of $5.00

4. *Moved,* That it is the sense of the council that members in good standing of other state and territorial medical associations who apply for fellowship in The Massachusetts Medical Society shall be admitted to fellowship on the same basis as Fellows of The Massachusetts Medical Society who have resigned and apply for readmission, provided that such members of other state and territorial medical associations meet the requirements of By-laws 1 and 2. Therefore it is directed that this provision be included in the draft of the next revision of the By-laws.

The motions being read and acted on severally were passed unanimously.

The secretary read a communication from the committee of the society on Public Health, which was accepted.

On motion of Dr. R. I. Lee, it was

Voted, That the council endorse the four following propositions which were embodied in the said communication;

1. That local health administration be placed as far as may be in the hands of a single official who shall hold office during his continued efficiency.

2. That said officials, wherever possible, be men trained for their special duties.

3. That in neighboring and sparsely settled communities a single health official be given authority over two or more towns or communities.

4. That communities be shown the advantages of such permanent trained health officials; that they be urged to obtain such officials; and that they be stimulated to support them loyally when they have obtained them.

Dr. A. N. Broughton, Chairman of the Committee of Arrangements, outlined in a general way the plans for the coming annual meeting; and Dr. Arnold, for the officers of the sections, reported along the same lines.

Dr. Broughton asked for an expression of opinion from the council whether the annual dinner should be given in the middle of the day or in the evening. The question was discussed at considerable length by the following men; H. C. Ernst, C. F. Withington, J. F. Burnham, J. B. Field, E. B. Harvey, G. B. Shattuck, and F. W. Goss, and the many advantages and disadvantages of a dinner at either time were set forth in detail; also the merits of a postal card vote and reference of the question to the district societies was discussed. Dr. Prior stated

that he had complete confidence in the Committee of Arrangements, and that he thought there were no more complaints last year than in past years; and that it was difficult to get an opinion by a postal card vote; therefore he

Moved, That the matter be indefinitely postponed; and it was so voted.

Dr. W. H. Merrill presented a communication from the Essex North District Medical Society as to the practical application of the Workmen's Compensation Act as it relates to the care of injured employees by hospitals and physicians.

Dr. Watts, President of the Norfolk District Society, discussed the communication, pointed out the present unsatisfactory situation, and presented the following motion;

Moved, That a committee of five members of the council be appointed by the president to consider the workings of the "Workmen's Compensation Act" so called, as it affects the physicians of Massachusetts; to coöperate with the Committee on State and National Legislation; and to report at the annual meeting of this council in June, the result of its findings, together with such recommendations as it may deem expedient.

Comments were made by Dr. Sweetsir, Dr. Malone, Dr. Field, and Dr. Cotton. A motion to amend Dr. Watts' motion by making the committee six instead of five members was lost; and the original motion was passed unanimously. The president appointed the following as this committee:—F. J. Cotton, Boston, Chairman; W. A. Dolan, Fall River: S. B. Woodward, Worcester; F. W. Snow, Newburyport; R. J. Meigs, Lowell.

Adjourned at 1.45 P. M.

WALTER L. BURRAGE, *Secretary*.

INTERNATIONAL MEMORIALS TO LORD LISTER.

The following letter and editorial comment from the *Journal of the American Medical Association* for Jan. 25, p. 308, is reprinted in the hope that it may call the attention of members of the Boston profession to a worthy memorial which deserves and should receive their cordial and substantial support.

"*To the Editor:*—I have received word from Mr. A. Ernest Maylard of Glasgow that the managers of the Royal Infirmary have been induced to retain one of the wards in which Lister worked. It will be converted into a museum for everything associated with Lister and his great work. Surely no American surgeon can contemplate such a memorial and the other memorials planned without wishing to take part in at least one of them. The profession owes the profoundest debt to Lord Lister. We all have recognized this in words. Now the opportunity has come to recognize it in deeds. I beg leave through *The Journal* to appeal to members of the profession throughout the country to contribute such sums as they feel they can afford, sending the amount to those having charge of any of the proposed memorials.

May I also ask through *The Journal* that the various medical journals of the country give publicity to these splendid memorials to one of the greatest benefactors of humanity?

W. W. KEEN, M.D., Philadelphia.

[COMMENT.—The Lister memorials comprise a Lister International Memorial Fund, from which will be drawn from time to time a Lister International Award for the most notable contribution to surgery in any part of the world, and which will also support fellowships and studentships in surgical research; a monument in London; a memorial tablet in Westminster Abbey; a monument in Glasgow; and the preservation of the ward in the old building which is now being torn down to make way for a new building of the Royal Infirmary. This ward will be arranged at it was in Lister's time, furnished with contemporary articles, and provided with exhibits showing the work that Lister did and with articles of a personal nature associated with the man in his work. Contributions may be made to any of the memorials, and may be sent to Dr. W. W. Keen, 1729 Chestnut Street, Philadelphia. Each contributor is asked to designate the particular memorial to which he wishes his contribution to be applied.—EDITOR.]"

AVICENNA AND HIS WORKS.

AMONG the two thousand priceless manuscript volumes which constitute the library of the Hagia Sophia at Constantinople, founded in the middle of the twelfth century by the Sultan Mahmud, is a copy of Avicenna's great Arabic treatise on medicine, "KANUN FI'L TEBB," dating from the year 1220. This work, as described in a recent issue of the New York *Tribune*, is a book 3¾ by 5 meters in size, "bound in velours and covered with a strange script. . . It contains three hundred pages, each of which is adorned with sketches representing a plant, a fish, an insect, or other animal. All the illustrations are in natural colors."

Avicenna, surnamed the Prince of Physicians, was born at Afshena, Bokhara, in August, 980, his Arabic name being Ibn Sina. He was the most famous of the Arabian physicians. His medical works, which number over one hundred, though little more than transcriptions from Hippocrates and Galen, constituted the form in which those authors were chiefly known to the medieval universities, and for six centuries were standards of medical tradition, teaching, and authority. He died at Hamadan, Persia, in 1037.

RECENT DEATHS.

ROBERT EDDY BELL, M.D., a Fellow of The Massachusetts Medical Society, and a Councilor for the Middlesex North District Society, died at Lowell, Jan. 4, 1913, aged 51 years.

DR. H. D. GEDDINGS, who died on Feb. 13 in Washington, D. C., was born at Charleston, S. C., in 1858. He was a former assistant surgeon-general of the United States Public Health and Marine Hospital Service.

DR. GEORGE C. JEFFREY, who died of heart disease last week in Brooklyn, N. Y., was born at Albany, N. Y., in 1852. After graduating from the Pulte Medical College in Cincinnati, Ohio, he settled at Brooklyn, where he served on the staffs of several homeopathic hospitals. He is survived by his widow, by one daughter, and by one son.

DR. ARTHUR STANLEY FLETCHER, who died of typhoid fever on Jan. 31, at Waterville, Me., was born in that city on June 29, 1881. He received the degree of M.D. from the Tufts Medical School in 1906, and served as an interne at the Worcester (Mass.) City Hospital, at the Carney Hospital, South Boston, and at the Children's Hospital, Boston. He was a member and secretary of the Waterville Clinical Society, and a member of the Kennebec County Medical Society, of the Maine Medical Association, and of the American Medical Association. He is survived by his widow.

DR. WINFRED SCOTT SHEIGLEY, who died of cerebral hemorrhage last week in Boston, was born in Maryland in 1849. He studied dentistry and practised that profession for thirty years at Valparaiso, Chile. Since his retirement in 1903, he had made his home in Boston. He is survived by his widow, by one daughter, and by two sons.

DR. WOLFRED NELSON, who died of pneumonia on Jan. 16 in New York City, was born at Montreal, Canada, on April 9, 1846. After receiving the degree of M.D. from McGill University, he began the practice of his profession at Quebec in 1872, but subsequently removed to Panama. Here he became interested in climatology and the study of tropical disease, and in pursuit of these sciences he travelled extensively in Central and South America. In 1874, in recognition of his discoveries as an explorer he was elected a Fellow of the British Royal Geographical Society. In 1890 he returned to New York City, and there continued in active practice until a few months before his death. He was a member of the American Association for the Advancement of Science, and of the New York State Medical Society, and was the author of many treatises and papers on sanitation and tropical disease.

DR. WILLIAM F. GAMSTER, of Brooklyn, N. Y., died on February 11, at the age of 46 years. He was graduated from the Long Island College Hospital in 1896.

SOCIETY NOTICE.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, February 25, at 8 o'clock p. m.

SYMPOSIUM ON "DYSPEPSIA."

A New Method for the Diagnosis of Gastric Diseases with Reference to the Prognosis and Treatment. Geo. A. McEvoy, M.D.

Chronic Duodenal Ulcer; Its Rôle in Chronic Dyspepsia; Its Presence in Syphilis. C. P. Sylvester, M.D.

Gastric Symptoms Dependant Upon Diseases of the Gall Bladder. Samuel Crowell, M.D.

Gastric Symptoms Dependant Upon Disease of the Appendix. Arthur N. Broughton, M.D.

The March meeting of the Society will be devoted to a consideration of the Workmen's Compensation Act. The President invites suggestions.

BRADFORD KENT, M.D., *Secretary*,
798 Blue Hill Ave., Dorchester.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 8, 1913.

BROWNELL, C. D., surgeon. Detached from duty, Navy Yard, Portsmouth, N. H., to Naval Hospital, Boston, Mass., for treatment.

WRIGHT, B. L., surgeon. When discharged from treatment, Naval Hospital, Norfolk, Va., to duty at Navy Yard and Naval Hospital, Portmouth, N. H.

RICHARDS, T. W. surgeon. To additional duty, Naval Hospital, Boston, Mass., and Naval Hospital, Newport, R. I.

BOOKS AND PAMPHLETS RECEIVED.

A Reference Handbook of the Medical Sciences, Thomas Lathrop Stedman, Editor. Wm. Wood & Co. 1913.

Some Practical Points in the Interpretation and Management of High Blood Pressure, by Edward E. Cornwall, M.D. Reprint.

Suggestions Regarding the Nature and Treatment of the Toxemia of Pregnancy, by Edward E. Cornwall, M.D. Reprint.

The Indication for Treatment in Lobar Pneumonia and How to Meet Them, by Edward R. Cornwall, M.D. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 8, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	16	4
Chicago	—	—	Waltham	6	1
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	—	—
Baltimore	—	—	Gloucester	4	4
Cleveland	—	—	Medford	3	—
Buffalo	—	—	North Adams	3	1
Pittsburgh	—	—	Northampton	3	1
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	2	—
Providence	—	—	Attleboro	—	—
Boston	203	55	Westfield	4	1
Worcester	60	15	Peabody	—	—
Fall River	29	12	Melrose	6	1
Lowell	30	9	Woburn	2	2
Cambridge	—	—	Newburyport	—	2
New Bedford	23	17	Gardner	4	2
Lynn	22	5	Marlboro	—	—
Springfield	23	3	Clinton	3	2
Lawrence	—	—	Milford	—	—
Somerville	20	5	Adams	2	—
Holyoke	20	10	Framingham	—	—
Brockton	13	2	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	15	4	Southbridge	3	2
Salem	12	5	Plymouth	—	—
Newton	7	—	Webster	2	2
Fitchburg	14	7	Methuen	—	—
Taunton	15	1	Wakefield	2	1
Everett	13	3	Arlington	3	—
Quincy	—	—	Greenfield	3	1
Chelsea	19	1	Winthrop	3	—

Original Articles.

"THE ARGUMENT FOR THE LARGE STATE INSANE HOSPITAL."

BY SIR THOMAS CLOUSTON, M.D., LL.D., EDINBURGH.

Dr. Walter Channing has been good enough to send me a reprint of his article in your issue of August 1, 1912, on "The Argument for the Large State Insane Hospital," which he had read at the semi-annual Conference of the Massachusetts State Board of Insanity and Trustees of State Institutions; the subject under discussion being the size of hospitals for the insane and feeble-minded. I am well aware that it is always an invidious thing, and seldom fulfils its object, for a native of one country to criticise or even to take part in a discussion on the affairs of another land, the particular circumstances of which cannot be fully known to him. The question of the proper treatment of those suffering from mental disease and deficiency, however, is one that concerns equally all civilized nations, and the history of the subject shows that every country is indebted to its neighbors to a large extent for the enormous advances which have been made of late years in psychiatry and in the provision for the treatment of the insane and feeble-minded. I am the more emboldened to take part in this discussion that the State of Massachusetts, through its then Board of Lunacy and Charity, did me the high honor in 1879 to ask me to submit plans to them for "An asylum or hospital home for two hundred patients," and that these plans, I believe, influenced in some measure, the construction of some of the earlier asylums of the State. "Much water has run under London Bridge" since that time, however. I have for nearly fifty years taken the keenest interest in the construction of hospitals for the unsound in mind in Great Britain, America, and the Continent of Europe. I began with a prejudice in favor of the small and manageable hospital, and my experience of the large hospitals which have been constructed since that time has strongly accentuated my opinion that they have not always been a success on economical grounds and have often been failures in the interests of the insane. In some cases they have in my judgment, at least, been almost destructive to the medical idea of individualizing each patient and treating him, medically and otherwise, as a man with a body to be studied and a mind to be cured.

For the decision of this question there are various considerations that all physicians, humanitarians and legislators must take into account. Everyone will admit that the first of these is the happiness, cure or amelioration of those who suffer from mental diseases or deficiencies. The second is the cost of the proposed arrangements. The third is their effect for good or evil on the relatives of the persons so afflicted, and on public opinion. It is a fact to be deeply deplored that in all Christian countries there is a strong and cruel prejudice against those who suffer from mental disease and defect, a prejudice which right-thinking and well-instructed men and women should strive earnestly to combat. The kind of hospital in which they are treated manifestly affects this prejudice. The man or the institution that in any way lessens this handicap of the direst affliction of humanity does a great service to civilization and makes life more worth having to millions of afflicted men and women. The patients and their relatives are alike made happier.

I am aware that there are no data for fixing anything like an exact number as the maximum for which a mental hospital should be constructed. My personal experience of a small hospital for two hundred patients, of which I was the physician and superintendent, was that I knew each individual patient from start to finish of his illness, each official who aided me in my work, and each detail of administration, in a way I have never done in a larger institution. The human relationship between me and my patients, too, dominated the situation more. But I do not specially advocate this size of hospital. It has its disadvantages. When I came in charge of a larger hospital, one of about eight hundred patients of all classes, my experience was such, after giving the question my most careful attention, that I resolved to exercise all the influence I could possibly bring to bear, to prevent the institution being much enlarged. So strongly did I feel this to be my duty to my patients, that, in face of what seemed to be a binding agreement between the Managers of the Royal Edinburgh Asylum and the City of Edinburgh to admit all rate-paid patients sent to it, I urged my Board to a non-fulfillment of this contract. They resolutely backed me up, taking the consequences. Fortunately, common sense, dread of the law's delays and uncertainties, with the general homologation of my ideas regarding the disadvantages to the patients of too large an institution, prevailed, and the City of Edinburgh provided for its rate-paid patients one of the most up-to-date hospitals, at Bangor. Its Lunacy Board, under the advice of the late Sir John Sibbald, who had just retired from our Commission in Lunacy, went to Germany for its idea of a "village asylum," where the various buildings are scattered over an estate of six hundred acres, and are adapted in their construction and arrangement to the varied mental and bodily conditions of the patients. It restricted the number to be accommodated to about eight hundred patients. No one can say that the patients are not better off in the two institutions than they would have been in the one enlarged to twice its size. It will always be a source of personal satisfaction to me to think of this. In Scotland we had been prepared to adopt the idea of individualization by our experience of the advantages, economic and per-

sonal, of boarding out two thousand of our chronic and harmless patients in families all over the country. This plan had been largely initiated and carried out by Sir Arthur Mitchell, one of our Commissioners in Lunacy, fifty years ago. Our experience of this "Boarding-out System" has been, amongst other advantages, that it largely saves the capital expense of building hospitals and that the mentally unsound and defectives so mingle with ordinary citizens that the former prejudices against them have been reduced to a great extent. The individual peculiarities and wants of the patients are carefully studied and they are on the whole happier than they were when inmates of hospitals. They live a really "home" life. In Scotland, I am glad to say, we have only one hospital which exceeds a thousand patients, and that very slightly.

In England the opinion in favor of the smaller hospital was strong and universal among our best men sixty years ago, but the convenience and the apparent economy of additions to existing institutions has prevailed and she has now 35 hospitals whose numbers exceed a thousand patients. In Ireland there are five institutions with more than a thousand patients, but none over sixteen hundred. The last Report of the Commissioners in Lunacy for England, that for 1911, contains many facts which bear on this question. There are in England 95 County and Borough Mental Hospitals, which together treat 99,742 patients, the vast majority of whom are of the rate-paid class. The average number of patients in each hospital is, therefore, 1050, this average having gradually increased for the 66 years since our first important Lunacy Act became law. Of the 35 hospitals which have over 1000 patients, the largest of all has 2,760. Taking first the recovery rate of those 35 asylums on the admissions for the year, patients transferred from other asylums being excluded from the computation, it is seen to be 32.4%, while the average rate for all the institutions was 33%, and that for the hospitals with less than 1,000 inmates, 33.6%.

The other kind of institution in England consists of the 14 "Registered Hospitals" which receive only private patients at various rates of board; 840 of those being admitted for the year, and their total population at the end of 1911 being 2,621. The average number of patients in each was, therefore, 187. The recovery rate on the admissions in them was 47.5%, against 33% in the County and Borough Hospitals. This is a striking fact, but it is not a sufficient ground for an absolute scientific induction. The patients all paid both higher rates of board and had a much larger nursing staff in these Registered Hospitals, and in other ways the circumstances are not alike in the two classes of institutions. But even allowing for this, I cannot help thinking the small hospital with its more numerous staff partly accounts for the higher recovery rate.

In regard to the economical aspect of the question, the Report from which I have quoted shows that while the average yearly cost for each patient in the whole of the County and Borough Asylums of England, large and small, is £26 13s. a year, the cost in the 35 asylums with over 1,000 patients in each is £26 17s, so that there is no saving of money by enlarging them to this size.

There is an argument against large hospitals which I have seldom seen referred to, but which to my mind is of importance in deciding the question of their maximum size. It is the tendency to a deteriorating and hardening effect on the minds of the physicians who treat the patients whom they cannot study medically, and of the lay officials, through their coming in daily contact with such vast numbers of demented people. Such mental derelicts are incurable, are to human nature as it commonly exists, largely uninteresting and unlovable, suggestive of no new and stimulating ideas and a deadweight on the intelligence and emotions. It needs all one's sense of duty, all one's medical instincts and all the feeling of human kindliness that is in one to fight against this benumbing influence, even in a moderate sized asylum. My experience, and it is that written largely in the history of the unsound, is that it is the medical instinct which chiefly keeps the doctor immune from callousness of mental action and conduct. The lay mind, however well principled, however kindly, and however religious, is apt to yield ultimately, from sheer lack of interest in such cases, to the temptation of neglecting them. They are sometimes troublesome, and their habits are often dirty and offensive. The *cui bono* is apt to be almost unconsciously asked after the first years of energy, devotion, and interest in the work. I have been simply amazed and shocked at the proposals and the practices of well-principled, well-trained, and conscientious matrons, head-attendants and nurses, as well as lay members of committees, as to what was good enough for certain troublesome and incurable patients, and as to the measures that should be taken with the dangerous and destructive among them.

There is another argument which I have been in the habit of putting forward in discussing this matter. It is this, and may be put in the form of a question: "Why should not every small city and district of, say from a hundred thousand to three hundred thousand inhabitants, have its own mental hospital, as it now has its general hospital, its almshouses and its higher grade schools? The way in which we find masses of incurable patients in large institutions neglected by their relations, simply because they are too far off to be visited, is a very serious fact in the treatment of the insane. There is no critic so keen about the neglect of a patient as a mother or a maiden aunt. There is no stimulus so good for the nurses and officials and doctors, and so effective, as a personal appeal on the part of a near relation of a patient. Is it not one of the primary rights of a citizen, sane and insane, in a

civilized, well-governed country, to have reasonable facility of visiting or being visited when suffering from disease of any kind? I think myself that this is as much a humanitarian requirement as being housed and clothed and fed and nursed and doctored. Everyone acquainted with the subject knows that this personal visiting of the patients is not so common in large institutions, distant from the localities in which the patients have lived, as in the smaller hospital.

There are few men so alert in mind and body, so keenly conscientious and so medical in their instincts that they will keep up year by year for over twenty or thirty years the individual interest in each one of a thousand patients. When it comes to two or three thousand, the thing, in my judgment, is impossible. If I might refer to my own experience on this point, I found my power of individualizing my patients sensibly diminished after I had been 30 years at the head of a hospital of 800 patients, though I began this at 23. I had always laid down for myself the dictum, as a counsel of perfection, that when I ceased to be able to say to any of my patients, "Good morning ———," calling him by name, that then I should seriously think of retiring, and I never had more than about 850 patients, who were distributed and classified in 12 buildings, no "ward" in the main houses containing more than fifty patients, and some of them much fewer.

It is a suggestive fact in regard to this question that until very lately few hospitals were from the first arranged, planned and built for over a thousand patients. The additions to that number were commonly carried out as matters of expediency, of getting over the difficulty of purchasing more land, or of supposed ease of administration or economy. I believe that a certain amount of intellectual and administrative inertia, with a reluctance to face up the whole bearings of the question at issue were really at the bottom of most of the large additions to existing hospitals. I have been impressed with the fact that many of the Commissioners in Lunacy, members of the committees, and the physicians, have been inclined to apologize for the existence of such additions, and of large asylums, instead of defending them on principle. Dr. Channing in his paper, while endeavoring to take an impartial view of the subject discussed, clearly shows some of the same spirit of uncertainty and apology. His medical instincts seem to me contending with his argument. The economic gains of a large asylum have been nil, and the arguments that the same administrative buildings will do for a hospital of a thousand patients or for two or three thousand, has been proved to be fallacious.

The intelligent lay man, as well as the doctor, naturally asks the question, "How has the increase in the size of hospitals affected the recovery of the patients as a matter of experience?" I am not sure that we have reliable data on which to answer this question, because of late years, in Great Britain at least, the character of the patients sent to such hospitals has in many respects changed. Far more of the senile dotard class and many more paralytics and broken-down people are now certified as insane, and sent as patients to mental hospitals than formerly was the case. Certainly our general recovery rate has fallen considerably in the last 40 years. But my personal impression is a very strong one, and it seems to be fortified by the statistics I have quoted, that the greater individual attention which is bestowed on the curable patients, the more abundant liberty which the convalescents enjoy, the feeling of being an individual instead of one of a crowd, which exists in the smaller institutions, are influences which powerfully tend to prevent many patients falling into dementia, that terrible goal of all the uncured insanities. I have elsewhere defined insanity as a "tendency to dementia." No one who has had an insane relation and has thought clearly and felt acutely as to the problem of his recovery, but has striven to attain the most individual attention, the greatest amount of personal nursing and the most concentrated medical experience for this end.

I have not referred to the "Psychiatric Hospital" of small size, with a large medical staff and situated, if possible, near a medical school, for the early treatment of the curable and acute cases of mental disease, because I think that is now accepted by all of us as being most desirable, nor have I specially referred to institutions intended exclusively for the quiet, incurable class and for many of the quiet mental defectives, because I believe the general arguments I have put forward apply also to those classes, if we are to secure for them that humanizing care which will produce the greatest amount of happiness in their lives.

As responsible advisers to the local authorities who represent the rate-payers, I believe we shall be on safer ground if we doctors follow our medical instincts, which always make for individualization in treating any disease, rather than by taking motives of expediency, ease of administration and saving money, too much into account. To crystallize a wrong policy by bricks and mortar where the recovery from disease or human happiness is at stake, may be irretrievable. At all events, the patient and his chances of recovery should always have the benefit of the doubt.

No greater thing has been done for humanity in the last hundred years than the provision of the Mental Hospital. A public, which was at first entirely unconcerned, ignorant and prejudiced has been so roused and educated that it has done this. That public, under the influence of its humanitarians and its doctors, has willingly spent over £10,000,000 in providing Mental Hospital accommodations and is spending £4,000,000 a year in the cure and maintenance of their 147,000 patients in Great Britain. Those figures must be more than doubled for America.

The responsibility of the building and running of those hospitals and the right expenditure of those vast sums is enormous. If mistakes are made, through insufficient care, to solve the problem rightly, it cannot, unfortunately, be easily undone. We have gone in this respect on wrong lines in England, I believe, and the unsound in mind are in consequence not all getting the best done for their maladies. The United States and Canada would do well to make further inquiries before they follow our example.

THE SYMPTOMATOLOGY OF RENAL TUMORS; A STUDY OF SEVENTY-FOUR CASES FROM THE MASSACHUSETTS GENERAL HOSPITAL.*

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EVEN a hasty glance at medical literature, recent and old, shows that neoplasms of the kidney have had their full share of consideration. Garceau's admirable monograph, the monumental work of Albarran and Imbert, and the mass of statistical material contributed by others might lead us to think that the last word had been said, and that an early diagnosis was always possible. That such is not the case most of us know, but since, as we shall see, the patient may have his first intimation of the disease only after it has progressed beyond operative limits, we find ourselves in a situation which, in some respects, cannot be altered.

Under these circumstances, the writer makes bold to contribute his mite, in the hope that if it serves no other purpose, it will at least call attention to the gravity of the situation and to some of its difficulties.

That renal tumors are somewhat infrequent is shown by the fact that from the early eighties to the present time the clinical records of the Massachusetts General Hospital contain only 74 cases proved by operation or autopsy. This series does not, however, include many neoplasms of the kidney accidentally discovered at the autopsy table and which gave no hint of their presence during life.

The list comprises 27 hypernephromata, 7 sarcomata, 7 carcinomata, 3 adenomata, and 1 endothelioma. The remaining 24, in the absence of microscopic examination, must remain unclassified. It is seen that, as usual, the hypernephroma occurs most often. The diagnosis of carcinoma in 7 cases leads us to believe that we have been unduly favored in this respect, but were some of the sections on which this diagnosis was based examined in the light of our present pathological knowledge, this number would probably be reduced somewhat. Also it is fair to assume that the 24 unclassified cases would group themselves in about the same proportion as the others.

In our analysis of this series we have endeavored to generalize as much as possible, believing that with certain exceptions, the symptomatology of renal neoplasms is essentially the same.

The 74 cases occurred in the white race with one exception, a negro. This is of interest, if not of importance. There were 43 males and 31 females, ranging in age from 1 year and 10 months to 66 years, the incidence being greatest in the fourth decade, with the fifth next in order. Contrary to custom, the left side was affected more often than the right, 41 against 30.

So far as could be ascertained (the estimate must necessarily be rough) the duration of symptoms pointing directly to the urinary tract or kidney ranged from a few days to over ten years. The latter figure may seem startling in the presence of a malignant growth, but is not inconsistent with our knowledge of the habits of such tumors, nor is it in disagreement with the statistics of other writers. However, in more than half the cases there were symptoms which brought the patient to the hospital within a year of their onset; in fact the greatest number (28) sought relief within six months. It is significant to find that in many the malignant nature of the disease had manifested itself in general terms long before it revealed its locality. Thus 13 patients said they had been "running down" or "losing weight" for many months or even years before the appearance of any symptoms of a local naure. It is this aspect of the situation which clips the wings of our hope and makes the early bird a *rara avis*.

Inquiry as to the way in which the patient became aware of his trouble shows that in forty cases the situation gradually unfolded itself by a growing sense of weakness, a slow loss of weight, a little disturbance of urination, some unaccountable dyspeptic symptoms, a fleeting pain in the loin, a change in the color of the urine, or an increase in the girth. In the remaining thirty-four the curtain was suddenly drawn, showing hematuria or tumor on a background of pain.

Loss of weight is known definitely to have occurred in 51 cases. In some it was very gradual, extending over months or even years; in others it was a question only of weeks, and often involved many pounds of flesh.

Urinary disturbances, aside from hematuria, also figure in the picture to a certain extent. Frequency, dysuria, urgency or difficulty were noted in 21 cases, but are not to be regarded as pathognomonic. In 46, urination was said to be normal in every respect.

Nausea and vomiting, usually accompanying renal colic, but often of independent origin, were noted in 29, and are to be regarded as significant. When not produced by renal colic, they may be accounted for by a toxemia, or even by metastases in or about the digestive organs.

* Read at the meeting of the New England branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

It is well known that the cardinal symptoms of renal tumor are, in order of frequency, pain, tumor and hematuria. As regards pain, a point of diagnostic value is that it may and often does come on during sleep, thus differing from the pain caused by renal calculus, and aroused by muscular activity. It may be accounted for by a passive congestion of the kidney, by pressure on nerve trunks, by the passage of clots or shreds of tissue, or by a temporary blocking of the ureter. In other features, such as intensity, duration, location and radiation, it has no special characteristics.

Hematuria, like pain, also may begin insidiously and without apparent cause. It often alternates with a clear urine, appearing late or early in the disease, and may occur but once or may be constant. Its relation to pain is important, the two often beginning simultaneously. Its duration is generally brief, its frequency and intensity variable.

An inquiry into the initial symptoms in these patients shows that pain alone occurred in 25, hematuria alone in 18, and tumor alone in 15. Pain and tumor, and pain and hematuria sounded the alarm in six cases each, hematuria and tumor together were seen but once. That pain is an almost constant feature is shown by the fact that it occurred at some time during the course of the disease in 63 out of the 74 cases, while the patient had noticed a lump in his side 46 times, and had passed bloody urine 39 times.

Further analysis shows that from time of onset to operation or death pain was the sole symptom in 10 cases, tumor alone in 5, and hematuria alone in 3. On the principle that misery loves company, we find these symptoms grouping themselves together in one combination or the other so that during the course of the disease pain and tumor were the symptoms in 22, pain, tumor and hematuria in 16, pain and hematuria in 15, and, finally, tumor and hematuria in 3.

One patient had no symptoms in the urinary tract at any time, came to the hospital because he felt "all in," and revealed the nature of his malady only after careful physical examination.

The general condition of 30 was considered to be good, whereas in 28 it was distinctly poor, and in 15 could be called only fair. In other words, 43 cases showed the effects of the disease to a greater or less extent.

Sixty-five patients had a normal temperature at time of entrance, from which it is clear that renal growths *per se* cause no pyrexia.

An examination of the urine in 71 cases showed the presence of albumen, pus, casts, or blood in 61. Hematuria was observed after their admission to the hospital in 17 patients. It is thus seen that a pathological urine is the rule, but it is equally clear that in the absence of hematuria it may give no definite clue to the diagnosis. It is also noteworthy that in ten cases, all with well developed tumors, the urine, when examined, was normal in every respect. Some authors have mentioned the occasional presence of tumor cells in the urinary sediment. Such findings are conspicuous by their absence in this series. But in view of the statement of the pathologist in many of the excised kidneys, that the growth was found to have extended into the renal pelvis or ureter, one might reasonably expect the microscope to reveal tumor cells more often.

The question of increased arterial tension, especially in connection with hypernephromata, has been investigated by other writers. That it may occur has been shown by Eisendrath, Neisser and Holmes, Keen, Pfahler and Ellis, and by Ochsner. On the other hand, Eisendrath and Garceau, after careful investigation, have each concluded that it is infrequent. The meagre data furnished by the present series of cases support this view. The blood-pressure was observed in only three, one a hypernephroma, so proved by the pathologist. The patient was 54 years old, with a blood-pressure (presumably systolic) of 140 mm. The other two cases are unclassified, but in one the clinical diagnosis was hypernephroma. The patients were 43 and 57 years of age, their blood-pressures being respectively only 120 mm. and 135 mm. Although this evidence is slight, it at least shows that no marked rise of blood-pressure is to be expected in such cases.

Cystoscopy and ureteral catheterization were done in but a few of these patients. In some a stream of bloody urine was seen to issue from the affected side. It seems worth while to mention briefly a case of hypernephroma, in a male, cystoscoped by the writer before operation. On the posterior bladder wall, near the fundus, was a smooth, fleshy growth, perhaps the size of a dime, with a short, thick pedicle. In the light of the subsequent operative and pathological findings it was believed that this tumor was metastatic. Garceau found only one instance of bladder metastasis in 176 cases of hypernephromata. With the hope of determining the nature of the tumor in our patient, the bladder was examined again about two weeks after operation with the Young operating cystoscope. The growth had completely disappeared, leaving behind a small scar with a sloughing base.

The x-ray, used repeatedly in our series, showed nothing of value beyond an occasional calculus, or a difference in the density or size of the two organs. We must insist, however, on the importance and even the necessity of careful examination by the cystoscope and x-ray. If the bladder presents a negative picture much valuable information can be obtained by catheterization of each ureter. By this means alone can we determine the character of the two urines, and estimate the functional capacity of each kidney, a matter of supreme importance in the consideration of nephrectomy. Also in combination with the x-ray, the stiletted catheter or a collargol injection of the renal pelvis

will often clinch a diagnosis, or eliminate the kidney entirely as the seat of trouble.

Convincing proof of the constancy of a palpable tumor is furnished by the statement of its presence in 65 cases. In a few the mass could not be differentiated from a mere hypertrophy of the kidney from some other cause. In the large majority its shape, nodularity, hardness, immobility, and, in some cases, enormous size, left no doubt as to its nature. Tenderness is not a constant feature, as shown by the fact that it was mentioned by the patient before entrance only fifteen times, and was elicited during the course of the physical examination only 27 times.

In view of the known tendency of renal tumors, notably hypernephromata, to begin in the upper pole, and hence escape early detection, the writer wishes to emphasize the importance of examination in other than the dorsal position. The bowels should be thoroughly emptied, and the methods of renal palpation described by Guyon, and by Israel used with care. Personal experience has demonstrated many times that a kidney which cannot be felt in the ordinary dorsal attitude, is often distinctly palpable with the patient in Israel's position, *i.e.* lying on the sound side with the thighs flexed, the operator palpating the kidney by bimanual pressure.

In the examination of this class of cases we must be ever watchful for evidence of metastases. Lung symptoms of vague origin, gastric disturbances of apparently idiopathic nature, bone tumors of suspicious character, must always be regarded as merely the tail to the kite. In our present series such metastases were observed clinically in but eight cases, three times in the supraclavicular glands, twice in the lung, and once each in liver, spine and pelvis. The records of many cases, on the other hand, show that the growth had long since exceeded the possibilities of operation by extension along the great vessels, while in others, coming to autopsy, the liver, brain, spleen and other vital organs were found to be hopelessly involved. In his analysis of 176 cases of hypernephromata, Garceau found bone to be the favorite seat of metastases, with lungs and regional glands next in order, but with practically every other tissue offering a fertile soil.

The investigations of Guyon, Legueu, and Morris have shown that renal tumor and varicocele (especially right sided) not infrequently go hand in hand. No such companionship has been noted in this series. There were three instances of varicocele, all on the left side, none of them remarkable for size of sudden appearance, but in each case the tumor was also on the left, a point which is perhaps suggestive. In the same connection we have noted a dilatation of the abdominal veins (*caput Medusae*) in four cases, once on the right, thrice on the left side, while one patient was sorely afflicted with hemorrhoids, and another had marked varicosities of both legs.

Such is the picture to be drawn from a fairly large number of renal tumors, none the less valuable because it is a composite. It shows that in spite of our best efforts we are still many laps behind the disease in the race for victory. But it also gives hope that much ground may be gained and time cut short by minute study of the symptomatology, by the intelligent use of every diagnostic procedure, and, where all else but tumor has been eliminated, by operative exploration of the kidney without delay.

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THE EARLY RECOGNITION OF TUMORS OF THE BLADDER.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

THERE are many sides to the subject we are to discuss tonight, and one that I believe we may consider with profit is, "How can we get better results in our cases of tumor of the bladder?", for I believe that all who have seen and followed any considerable number of these cases will admit that their results have not been entirely satisfactory. My remarks apply only to primary tumors of the bladder. Tumors that have their origin in the prostate and invade the bladder secondarily belong in a different group; in them the outlook is very properly considered especially unfavorable.

The means at our disposal for the treatment of bladder tumors have been added to materially within the past few years, and vary from the intravesical destruction of small papillomata, by means of cauterization, to the removal of a part or even the whole of the bladder, a very wide range of procedures and presumably adequate for the successful treatment of any primary tumor of the bladder at one time in its course.

Yet the application of these means are not always successful. Only a few days ago I saw an autopsy that illustrated this point only too well. It was on a man, for whom I had done, in October, 1911, a transperitoneal resection for a tumor situated most favorably, high in the posterior wall of the bladder. The mass had been excised with a good margin, yet it recurred, and at autopsy the whole mesentery was studded with great metastases; the bladder itself was nothing but a thick walled cavity of friable material; the os pubis was so infiltrated that it was easily cut through with a knife. Perhaps this was a case where I should have done a total cystectomy, an even more radical operative procedure than transperitoneal resection. However, my per-

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

sonal feeling about cystectomy is that it is such a frightful mutilation that it is justifiable only in advanced cases, so much so that one might almost say of it that, in the cases where it is clearly indicated, it will probably be of little benefit.

As we can remove any part of the bladder, or the whole of it, as seems wisest in the individual case, I feel that we have practically reached the limit of operative possibilities in dealing with these cases; that if we are to get more satisfactory results, they must come from the application of these means at an earlier stage of the disease. To do this, these cases must be recognized earlier than they are at present.

As I have gone over the histories of my own cases, I have been impressed with the late recognition of these cases. For instance, in the case whose autopsy I have cited, the first symptom was in February, the operation in October. The tardy recognition of bladder tumors is not often due to a lack of symptoms, but to a lack of a just appreciation of the significance and importance of symptoms. The symptom that we see early in a large proportion of growths of the bladder is bleeding. This is a striking symptom, but it occurs with other conditions, and when unattended with pain, as it so often is, there seems to be a very unfortunate tendency to assume that the bleeding has a less important origin and to wait to see if it recurs. Often the recurrence will not be for weeks or even months, and again the bleeding is transitory and ceases promptly under almost any treatment. I believe that what has been said and written about the so-called "essential hematurias" has tended to confuse practitioners and has encouraged them to believe, in the absence of pain or other marked symptoms, that the bleeding they had in hand was very likely of this type.

This tendency to ignore the symptom of urinary bleeding has come home to me especially forcibly recently. During the last week in October I operated upon three cases of tumors of the bladder; all these happened to be papilloma. In two of these three cases the bleeding began three years before; in the third there had been attacks of bleeding over a period of eight or nine months. This is the common history, the appearance of the initial hematuria a long time before the patient came for careful diagnosis. I find from my records that I have seen but two cases of bladder growth in which the patients have presented themselves within a month of their initial hematuria.

Urinary bleeding is not a very uncommon thing and may be due to almost trivial conditions, but it should be looked upon in a similar way to a mass in the breast. A mass in the breast may be a chronic mastitis a cyst or a fibroma, but no one is justified in assuming that this is the case until he has definitely found it to be true; so a urinary bleeding may depend upon a trivial cause, but this must not be assumed until it has been definitely demonstrated.

It further seems to me that too much stress has been put upon the non-malignant tumors of the bladder, which certainly make up a very small proportion of these cases. I have seen a considerable number of tumors of the bladder, but, with the exception of a few pedicled prostatic masses, which I believe it is straining a point to call tumors, I have never seen a tumor of the bladder that was not either actually or potentially malignant. The carcinomas and sarcomas are actually malignant; the papillomas, unless eradicated early and thoroughly, are in the vast majority of instances going to spread so as to involve a large amount of the bladder surface; and even when they are not actually malignant, they are going to undermine health by hemorrhage and sepsis. This sepsis does not limit itself to the bladder, but often extends to the kidney, for with an infected residual of any considerable number of ounces there is going to be back pressure on the kidneys and, finally, pyelonephritis.

You may feel that I am by inference putting the blame for our lack of success in the treatment of bladder tumors on the general practitioner. While I agree that without the early coöperation of the general practitioner I see no hope for improvement in our treatment of tumors of the bladder, yet I do not think any blame attaches to him for our past lack of success. If there is blame to be placed anywhere, it belongs to us who are the ones who are expected to guide the general practitioner about such matters. I believe we have not made two points sufficiently clear.

First, that hematuria is always to be looked upon as a grave symptom until it has been definitely proven to be trivial. This demonstration of its triviality must not rest upon the fact that it stopped promptly under some simple medication, or that it was unattended with pain. It can be declared trivial only when, after a most careful examination we find that it has its origin in some unimportant condition.

The second point that I believe we have not made sufficiently clear is in regard to the real malignancy of bladder tumors as a whole. We speak about the malignant and benign papillomas, referring to their microscopical picture rather than to their clinical course. This gives to many men not especially familiar with them the impression that there is a class of bladder tumors that is really clinically benign. I do not believe this is so, and I feel we should make it clear that all bladder tumors are essentially malignant. I do not intend to give the impression that all papillomata are malignant in the sense that they infiltrate or lead to metastases, as the carcinomata and sarcomata do, but they are malignant in the sense that they proliferate locally and lead to danger through hemorrhage and infection of the bladder and kidneys.

One of the three cases I operated upon in October showed this very clearly, and in this instance the delay cannot be put upon the gen-

eral practitioner. This man, fifty years of age, began to bleed three years before. He was seen by a competent man, who told him, after cystoscopic examination, that he had a small papilloma of the bladder. It was so small that he advised simply nitrate of silver irrigations. I suppose this man expected to have a chance to follow this patient, but the patient changed his residence, though he kept on with his physician's advice.

When I saw him, early in October, he showed a bladder full of papillomatous masses; his urine was low in gravity and solids, and contained a large amount of albumen. He had a residual of seventeen ounces. His renal function was poor. After some preparatory treatment, I opened his bladder and removed a handful of soft papillomatous masses. They clustered about the outlet and whole lower part of the bladder. This patient did well for a time and seemed to be on the way to recovery, when he suddenly died of embolism on the fourth day after operation.

The microscopical examination of this growth showed it was of the "non-malignant" type, and at the time of operation there was no point where I could feel any infiltration of the bladder wall. Yet, if we can believe the history, and I see no reason to doubt it, this "benign" tumor had grown in three years from a single small papilloma to a great mass; the kidneys had become involved and the growth infected. Certainly this growth was not benign as regards its clinical course.

To be sure, this man died of what one might say was an accidental cause, and yet I do not feel sure that we may consider embolisms in patients with advanced papillomatous growths of the bladder as quite accidental. There is a considerable tendency in such cases to embolism, since there are great veins that lead from the growth that seem to be favorite locations for thrombus formation and the detachment of emboli.

I have just had another case in which a septic pneumonia of embolic origin followed very promptly the loosening of some wicks that I had placed in a bladder to control oozing after the removal of some very large papillomatous masses. This man had to have his chest opened for an empyema that followed his pneumonia, but now bids fair to recover. These two cases do not represent the total number of cases of embolism that I have seen following operations about the bladder outlet. I believe there is a predisposition to embolism in these cases, and this becomes greater when we have infection added to the great dilatation of the veins of the bladder that we see in growths that have been allowed to reach a considerable size.

If we are going to teach that every hematuria may possibly be the first sign of a bladder tumor, and urge cystoscopy at once on the ground that the only chance of permanent cure may depend on immediate action, we must be able to detect bladder tumors with reasonable certainty. A single papilloma presents a striking picture that it is difficult to mistake. However, a bladder full of papillomata presents anything but a distinctive picture, especially if it is infected, as so often happens, and I for one have been absolutely misled, at the first examination, by the picture presented by a bladder filled with masses of growth.

With the infiltrating growths the difficulty in recognition is not in the advanced cases, which present a fairly definite picture, but in the early cases, the ones that I feel we must recognize if we are to get better results. These early cases may simply show little raised, rough surfaces, or slightly raised, velvety plaques, and be very difficult to recognize, especially when they are not bleeding.

I had the good fortune to recognize, some eighteen months ago, a beginning carcinoma in which the initial hematuria had been but three weeks before. This growth, which was nothing but a slightly raised and roughened area, was excised and a few months ago had shown no sign of return. In this case there was no infiltration to be felt, and microscopically the cell invasion was limited to the mucous membrane. In another case, operated upon four months ago, the patient was seen two weeks after his first hematuria. I could see what I supposed was a beginning growth on an intravesical projection of his prostate. I operated from above and found that the surface I had seen was really beyond the prostate on the lateral bladder wall. It was removed, with another little infiltrated area just anterior to the bladder outlet; both areas proved to be carcinoma. It is too soon to tell anything as to what the result will be. These areas were simply little velvety patches where the bladder had lost its normal surface. There was no ulceration and very little, if any, elevation of the surface.

There is another point in connection with the early diagnosis of bladder tumors that I think we should emphasize, that is, the difficulty that is encountered at times in finding the source of any urinary hemorrhage. This is most marked naturally when we make our examination in the interval between hemorrhages. Too many men have the idea that a cystoscopic diagnosis can be made in a single examination, and, while this is true in many instances, it is not without its marked exceptions. Especially is this true in cases requiring the location of the source of a urinary hemorrhage. It may be necessary, in order to arrive at a diagnosis, to study a case with great care, and over some time; this may require making several cystoscopic examinations.

In dealing with bladder growths at the stage I believe we should see them, if we will impress on the medical public the great importance of the early investigation of all cases of urinary bleeding, it is essential that we see the lesion and note carefully its location, with reference to

some of the landmarks of the bladder, before we open the bladder. This is because of the great difficulty in recognizing a small and non-infiltrated area in the open and collapsed bladder. For areas that are near one ureter I have found it useful to insert a ureter catheter before opening the bladder, simply to have a landmark by which to locate a certain point. This does not apply naturally to the larger growths. While a reasonable suspicion of a growth warrants us in exploring a kidney, in the case of the bladder we are not warranted in opening it until we have definitely located the point we are to attack. This is for the reason that it is extremely difficult to find a small and perhaps little changed area in an open bladder.

In closing, I would say that it is my belief that if we are to get better results in our treatment of bladder tumors, we must see these cases earlier; that in order to see them earlier we must impress upon the medical public two points: First, that any hematuria may be a sign of very serious bladder disease; each should be looked upon with suspicion until its source and cause are clearly demonstrated. Second, we should combat the idea of the benign nature of bladder tumors. A very large proportion are malignant from the start in that they infiltrate the bladder wall and lead to metastases. Some that are apparently benign in the beginning tend later to infiltrate. Some that do not show any tendency to infiltrate tend to multiply and destroy life by hemorrhage, sepsis and interference with the renal function. Until our knowledge of these tumors is greater we are taking too great a risk in assuming that any given bladder tumor is clinically benign, though we have reason to believe that a few probably are.

In my opinion, the only proper treatment for tumors of the bladder is their early and complete removal. In most instances I believe this should be by excision.

OBSERVATIONS ON RECENT CASES OF BLADDER TUMORS AT THE MASSACHUSETTS GENERAL HOSPITAL WITH SPECIAL REFERENCE TO OPERATIVE TECHNIC.*

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(From the Genito-Urinary Department.)

In this brief paper I wish to discuss certain points of interest in relation to the cases of bladder tumors which have been operated upon in the Genito-Urinary Service at the Massachusetts General Hospital during the last year. These are ten in number and all have been carefully observed. The oldest patient was 72 and the youngest 18, the others varying from 39 to 65. There were seven males and three females.

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

Pathologically four of these cases were infiltrating cancer. In two the infiltration was slight, in another it was marked, the muscular coat being deeply involved and in the fourth the process was extensive, going beyond the bladder. Three are described as malignant papilloma, these being pedunculated tumors with a papillary appearance having a small pedicle, the base of which on section had begun to show an infiltration of the deeper coats of the bladder with atypical masses of epithelial cells. Two are described as non-malignant papilloma. One of these is of interest because of the fact that two years ago he had two growths removed which were described as malignant papilloma. In one case which had previously been treated by high frequency cauterization, the excised tissue showed chronic inflammation with few epithelial elements.

Five cases were operated upon by the transperitoneal route, two of these requiring a reimplantation of the ureter, four by suprapubic cystotomy, one of these having had a previous transperitoneal operation. In one advanced case, curettage of the growth and cauterization of the base only was done. There were no operative deaths, although the case last mentioned left the hospital in poor condition and doubtless will succumb to the original disease. Another case is still in the hospital having had an embolic pneumonia 20 days after operation.

In regard to the symptomatology; all of the cases gave a history of hematuria and all but one or two showed marked bleeding at the time of examination. Some cases showed the terminal bleeding so characteristic of tumor, in others there was nothing in the character of the bleeding to suggest bladder rather than renal origin. Two of the cases suffered from urinary frequency previous to the advent of the hematuria, one of these having a median lobe prostatic obstruction. The others gave a history of painless, intermittent hematuria with varying intervals between the attacks but as a rule the bleeding tended to become constant.

The longest duration of symptoms was three years, in the case of non-malignant papilloma; the shortest was eight weeks. In this case the secondary anemia was so profound that transfusion was done before radical operation could be attempted. In another of nine weeks' duration practically an emergency operation was done, the bladder being distended with clots, the patient passing apparently clear blood at frequent intervals. These are extreme examples of extensive hemorrhage. The longest interval between attacks of bleeding was nearly two years. This occurred in a patient who presented a small papilloma on the posterior bladder wall with well marked hematuria. Operation was advised but the bleeding stopped and he disappeared, having no trouble until a week before entrance when he had an attack of bleeding sufficient to cause acute retention. During this time the tumor had about tripled in size. Some of the

cases were suffering from increased frequency of micturition due to a secondary cystitis. Pain, however, was not a feature in any of the cases with the exception of the advanced malignant one where it was intense, and in the case where there was retention due to clots. While the history of irregular intermittent hematuria with or without urinary frequency and associated with a low blood pressure is suggestive of bladder tumor and much more so should the bleeding be terminal, excluding the course of the prostate; an accurate diagnosis can only be made by means of a cystoscopic examination, which was done in all of our cases. By this means the size, number and position of the growths can almost always be determined. I qualify this statement for the reason that rarely on account of the size or the number of the growths or the presence of an excessive amount of bleeding an accurate interpretation is impossible. For example, one of our cases already referred to, a man of 50, where the bleeding was so profuse that beyond the fact that there was a tumor in the region of the base, nothing further could be made out. This patient was in poor condition, having diffuse bronchitis and a rapid pulse, so suprapubic cystotomy was done under spinal anesthesia. The bladder contained a large amount of bloody fluid and old clot; just above the left ureter orifice was a pedunculated papilloma the size of a plum which was removed. This patient made an uninterrupted discovery and left the hospital in two weeks.

In regard to the deductions which may be drawn from the cystoscopic appearances of these growths, we are able to say with considerable accuracy that a certain type of growth is malignant; in this class are the sessile and broad pedicled tumors and the infiltrating cancer. Unfortunately the reverse of this is not true, for however benign a papilloma may appear to the eye we have no means of telling whether or not any infiltrating of the base of the pedicle has begun. Cystoscopy is, however, of great benefit in determining the nature of the operative procedure to be followed out in a given case. These procedures are supra-pubic cystotomy, transperitoneal cystotomy, total cystectomy and the palliative operations of curettage and cauterization. The high frequency cauterization method of treatment is here omitted as it forms the subject of another paper.

SUPRA-PUBIC CYSTOTOMY.

We employ this operation for the removal of papillomata with small pedicles which do not involve the ureteric orifices. Our technic is as follows: The operative field is prepared with tinc. idoi, the bladder distended with boric acid solution and the patient is placed in a moderate Trendelenberg position. A median suprapubic incision is made through the muscles and fascia down to the pubic bone. The peritoneal reflection is found and displaced upward. The bladder is opened from this fold forward as far as is necessary to obtain a good view of the tumor. Wide retaction is employed and several sutures are placed in the bladder wall about the tumor by means of which it is steadied and lifted into the field. Should the tumor be near one of the ureteric orifices a catheter or probe is introduced, the pedicle is grasped with a right-angled clamp and the growth is excised, without being handled, with a good margin of normal tissue, the resection including the muscular coat. This space is closed with a continuous catgut suture through all layers which is sufficient to control the bleeding. The bladder incision is closed in two layers, the fascia and skin sutured, a small rubber tissue drain placed in the prevesical space and a catheter introduced into the urethra. This method was employed in four cases. Prompt recovery took place in three, two being discharged in 15 days and one in 12. There was slight leaking for a few days in one case only. The pathological examination in these three cases showed a beginning infiltration of the base of the pedicle in each. In the fourth case, already referred to, where benign recurrence occurred two years after a previous operation, the catheter became plugged, necessitating reopening of the suprapubic wound and the introduction of a tube. A sinus persisted for a number of weeks. The second operation was performed a year ago. This patient has at present several small recurrences which are being treated by high frequency cauterization.

TRANSPERITONEAL CYSTOTOMY.

We regard this the operation of choice in all cases of sessile and infiltrating growths where radical cure can be attempted except those so extensive as to require total cystectomy, as well as in cases where the tumor involves one of the ureteric orifices requiring reimplantation of the ureter, for the reason that the bladder may be widely opened and these tumors can be much more freely excised than by the other route. This operation was done in five cases, some of which are of sufficient interest to give in detail.

A striking case is one of a girl of 18 who had been feeling "tired" for a year and for the last eight weeks had had a profuse continuous painless hematuria with loss of weight and strength. There had been no pain, but of late some increased frequency of micturition. Examination showed a fairly developed, very anemic girl. Red count 3,000,000 Hg. 50%. A cystoscopic examination under ether showed a sessile malignant appearing tumor the size of a small grape on the posterior wall of the bladder well behind the intra-ureteric bar. Bladder otherwise normal. After the cystoscopy the red count fell to 2,250,000 and the Hg. to 20%. Three days later a direct transfusion was done, her father acting as donor. The pulse rate after the transfusion fell from 140 to 120 and the Hg. rose to 55%, the pulse of the donor going from 80 to 125. The next day there was a sharp

rise in temperature which was normal on the following day. The third day after the transfusion the patient had a good color, pulse 88, Hg. 80%. The hematuria remaining the same, irrigations with $AgNO_3$ and adrenalin solutions having no effect, transperitoneal cystotomy was performed. The peritoneal cavity was opened in the median line and after walling back the intestines, an incision was made in the posterior bladder wall at one side of the growth, this incision was continued in a curved direction about the tumor which was excised with a good margin of normal tissue leaving a racquet-shaped opening, the resection including the peritoneum. The bladder wound was closed with a continuous suture re-enforced by a second one infolding the peritoneum. The peritoneal cavity was closed without drainage and a self-retaining catheter inserted into the bladder. This was removed on the fourth day. The patient made an uninterrupted recovery, being discharged on the 16th day. The pathological examination showed epidermoid cancer extending to the muscular coat but not infiltrating it. A very unusual type of growth in so young an individual.

When the resection has been extensive or infection is present, the above technic is modified by the use of a suprapubic, extra-peritoneal drainage tube, which is removed after a few days and urethral drainage substituted to hasten the closure of the suprapubic sinus.

In the two following cases, the ureter was divided and re-implanted into the bladder.

In the first of these, the patient being a man of 46, a non-malignant papilloma was removed with the adjacent mucous membrane from the region of the left ureteric orifice. After the removal, the cut end of the ureter could not be recognized. The peritoneum was then separated from the left lateral bladder wall and drawn inward. The ureter was opened at the pelvic brim, a bougee passed into the bladder emerged form the middle of the resected area. The end of the ureter was freed and sutured to the bladder mucous membrane. The incision in the ureter was sutured and a drain placed to it and a suprapubic tube in the bladder. No ureteral drainage was employed. The patient passed some urine per urethram but a considerable leaking persisted from the wound. A cystoscopy, several weeks later, showed that the bladder had healed at the site of the excision but the ureter opening could not be identified. Shortly after this the wound stopped draining and a tender sausage-shaped tumor appeared in the left loin with some rise in temperature. The sinus re-opened itself with relief of symptoms. An operation was then undertaken for the closure of the ureteral fistula. The ureter which was not dilated was opened high up near the renal pelvis. A No. 7 ureter catheter was passed down into the bladder, grasped with a lithotrite and drawn out through the urethra. The catheter drained for six days and was then removed. Recovery was uneventful. When seen several months later there were no symptoms and cystoscopy showed a patent ureter orifice situated high on the posterior aspect of the left lateral wall. In this case it would have been better to have maintained drainage by means of a ureter catheter at the first operation as when contraction began the urine took the course of least resistance and fistula and extravasation occurred. On dilating the new ureteric orifice and establishing drainage, prompt recovery took place.

In the second case the method of dealing with the ureter was different. Cystoscopy showed a large tumor with a papillary appearance on the right lateral wall extending half way up and nearly to the median line below. The right ureter could not be seen nor could it be made out whether or not the tumor had a pedicle. For this reason the technic was modified by first performing an exploratory suprapubic cystotomy, when it was found that the tumors had a broad infiltrating base but apparently had not extended beyond the bladder. The operation was then converted into a transperitoneal one and a large portion of the right lateral wall and part of the base including the right ureter was resected. Search for the divided end of the ureter was unsuccesful so the peritoneum was incised over the bifurcation of the iliac artery, the ureter found, opened and a No. 6 ureter catheter inserted, the end of the ureter was readily found, slit laterally and sutured into the bladder. The catheter was passed out through the urethra and pulled down until the funnel-shaped end was just above the point where the ureter had been opened high up. This opening was closed and the peritoneum over it. The peritoneal cavity was closed without drainage and the bladder sutured about a rubber tube, a drain was placed in the extra vesical region to the under side of the ureter implantation. The ureter catheter drained well and was removed on the sixth day together with the other drainage, after which urethral drainage was started. He did well until the 20th day when he developed an embolic pneumonia and was dangerously ill for several days. The temperature fell by crisis, but the cardiac condition has remained unsatisfactory and the general condition seems to be gradually failing. On account of the small size of the bladder, constant drainage has been difficult to maintain but the suprapubic wound is closing slowly. He has had of late some pain in the right loin suggestive of pyelitis but there are no signs of renal obstruction.

The pathological report in this case is cancer deeply infiltrating the muscular coat so that the probability of recurrence is considerable.

While large areas of the movable portion of the bladder may be resected with perfect functional recovery, this case represents about the extent to which the more fixed part can be removed with the hope of a resulting useful viscus. Here about one-third of the bladder was removed, the incision going nearly to the median line and to within one-half inch of the prostate in front. We believe the method of dealing with the ureter in this case to be decidedly the better of the two.

One other case of which I wish to make brief mention is that of a man of 72 with prostatic symptoms and slight hematuria. Cystoscopy showed a median lobe obstruction and on the right side posterior to the ureter a papilloma the size of the end of the thumb. This was subjected to eight high frequency applications with considerable diminution in the size of the growth. The last cystoscopic note reads, "Tumor now consists of a number of small nodules and for the first time has the appearence of a number of small nodules about a parent

growth." Because of the suspicious appearance a transperitoneal cystotomy was done and an indurated area one and a half inches in diameter with a half-inch central ulceration was removed, together with a small median lobe.

The pathological examination is of interest. On section the excised area was found to be composed principally of highly vascularized granulation tissue showing a marked degree of chronic inflammation involving the submucous coat only. The epithelial elements showing little tendency to infiltrate. Whether this is in spite of or because of the previous high frequency cauterization, we are unable to form an opinion.

When the growth is very extensive but still confined to the bladder, or when both ureter openings are involved, total cystectomy should be performed after the method advocated by Dr. Watson. This consists of a preliminary bilateral nephrostomy, the cystectomy being performed at a later date. The procedure is a formidable one and is obviously limited to those patients who can receive the after-care incident to double loin fistulae.

The advanced case which was treated by curettage and cauterization is an example of that type which is obviously unfit at the time they present themselves for any other than some paliative operation for the relief of the distressing symptoms.

In conclusion, we would state that the foregoing represents our present views on the operative treatment of bladder neoplasms.

THE VALUE OF HIGH FREQUENCY CAUTERIZATION IN THE TREATMENT OF VESICAL PAPILLOMATA.*

BY HORACE BINNEY, M.D., BOSTON.

Little more than two years have passed since Beer[1] made the first report on the treatment of Papilloma of the Bladder by this method. With the comparative rarity of this disease, there is naturally, as yet, no large number of case reports on which to base opinions regarding this method, and in this brief period there are but few published cases which have been followed for more than a year. In the light of these facts, any attempt at this time to form conclusions as to the practical value of high frequency cauterization may seem premature. A study of the reported cases and my experience with the method in four cases has led me to believe that it is of certain definite value, and a number of points stand out clearly. These I shall dwell upon in the course of this paper.

Before weighing the evidence it may be well to review briefly the development of the method and the manner in which it is now usually employed. After the discovery of the high frequency current and its application in X-ray work and elsewhere, it was found that superficial skin lesions, such as warts, moles, etc. could be destroyed by cauterization with the high frequency current. According to the particular form of coil used, the current applied is either of two types: the bipolar or d'Arsonval type, and the monopolar or Oudin type. In the first, one pole was placed in contact with the patient's body or limb by means of a broad flat electrode, while the other pole was attached to a pointed metallic electrode placed on the tumor. On closing the circuit a fine stream of sparks is developed which produces a superficial cauterization. In the second (Oudin) type, but one pole is necessary, this being connected to a pointed electrode, and applied close to the tumor, giving off a similar stream of sparks, the return flow of current passing through the patient, the surroundng objects, and even the air.

The effect of this current on tumor tissue is to produce a superficial cauterization at the point of contact of the electrode. This is not fulguration, a term which has been borrowed from the electro-therapeutists, and designates a wholly different electrical effect; therefore the two should not be confused. "High frequency cauterization" is the more exact and therefore preferable term.

Although in their earlier cases Beer, Keyes,[2] and others used the bipolar method, they soon found that the monopolar or Oudin type of current was fully as effective and simpler in application than the other, and therefore adopted it altogether. This is the only method with which I have had experience.

For the benefit of those who have not seen the actual application of this procedure I will say that an ordinary catheterization cystoscope is used, an electrode consisting of a slender steel or copper wire covered with insulation, the size of a No. 5 or 6 ureteral catheter.

By the manipulation of the lever the electrode can be brought in contact with the tumor. On closing the circuit (usually by means of a foot switch) the cauterization is begun. It has the effect at first of blanching the tissue, and after fifteen seconds or so of the application of the current the cauterization actually begins, with charring of the tissue. Carried on for more than twenty-five or thirty seconds the cauterization becomes quite marked and the tissue cauterized adheres to the end of the electrode. If the cauterization is carried on for longer than that, it becomes inconvenient through fairly large masses of tissue sticking to this electrode so that it is clogged, and future applications cannot be made until the pieces of tissue are detached from the electrode. Sometimes quite large pieces of the tissue can be broken off even after a short application of perhaps twenty or thirty seconds. Of course, progress is much more rapid than when this takes place.

It has been fully demonstrated that papillomata, even of considerable size, can be completely destroyed in a reasonable number of sit-

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

tings. Our object, then, is to discover the value of this treatment as compared with other methods, of which the only one worth serious consideration is radical removal, through suprapubic cystotomy, by means of knife or cautery. For this purpose it will suffice to compare the following points in both forms of treatment, (1) mortality, (2) complication, (3) recurrence.

As to other intravesical methods, since the instruments required are expensive and complicated, the danger of injury to the bladder wall and of hemorrhage is far greater, and the results less satisfactory than with the high-frequency cauterization, I have omitted these methods from further consideration.

The mortality of suprapubic operations for bladder tumors is given by Von Frisch[3] as 14%. His statistics included malignant as well as benign tumors. Watson[4] gives combined statistics on 380 papillomata treated chiefly by curetting and cauterizing, showing a mortality of 10%. Since the operation of complete excision of the papilloma,—now accepted as the most effective radical measure,—is more formidable than curetting or cauterizing, the operative mortality is presumably somewhat higher. We may, therefore, conclude that the general mortality of methods of removal through the suprapubic wound is between 10 and 14%.*

Of the cases of high frequency cauterization so far reported, there has been no mortality, a result to be expected with such a simple procedure. One case of sudden death a few days after the treatment is reported by Beer but the patient was a cardiac, and the treatment appears to have been no way the cause of death.

As to complications following the suprapubic operations we know that hemorrhage, sepsis, post-operative pneumonia, etc. occasionally occur, although with diminishing frequency, thanks to improved technique. In the high frequency cauterization there appears to be no danger of any complication except hemorrhage. In the majority of the cases reported this is invariably too slight to be of importance. In one case reported by Keyes a severe hemorrhage occurred, lasting two days, and in a patient treated by me, on whom I cauterized his papillomata some 25 times, troublesome hemorrhage occurred only once. The bleeding lasted eight to ten hours, was sufficient to produce several medium size clots which he was able to pass without pain, but he had no other inconvenience and was able to go about his work the next day.

As is well known by students of this branch of surgery, the discouraging feature of operations for papilloma is the tendency to recurrences or development of fresh tumors in other parts of the bladder, on the suprapubic scar especially. I shall not burden you with examples, or reasons adduced to explain this phenomenon, except to quote a case recently reported by Thompson-Walker[5] of London.

A man 31 years old was operated upon for a single papilloma near the right ureteric orifice. The base was clamped and cut away with the cautery. One year later hematuria returned. Cystoscopy showed a recurrence at the site of the original tumor, and a "track of small papillomatous buds from the right ureter to the apex of the bladder and extending symmetrically across the left side of the bladder almost to the left ureter." The number was between 20 and 30.

The disposition of these secondary growths in this case is striking. They appear as if sown along a line on each side of the bladder, which corresponds to the position taken by retractors during the operation. The probability suggests itself that the mucosa thus traumatized by the retractors was the site of implantation of tumor cells, giving further weight to the implantation theory which has been the especial doctrine of Casper, Lichenstern and Zuckerkandl.

Whatever the cause of these secondary growths, their frequent occurrence is well known. According to Rafin[6] the percentage of recurrence following suprapubic removal is twenty-six. Of all methods of ablation of the growth from its site the most successful appears to be excision of the base with suture of the mucous membrane. Of four such cases that have come under my observation, one has shown secondary growths within six months, the site of the orginal tumor remaining clear so far.

With the complete excision of underlying bladder wall, the so-called transperitoneal method, I have had no personal experience in simple papilloma, but apparently the percentage of secondary growths is less than by other "radical" methods.

Turning to statistics regarding recurrence or development of secondary growths after high frequency cauterization,—the crucial point of this study,—we must admit that the period of less than three years, during which this method has been under trial, is too short for any irresistible figures to be forthcoming.

A number of the patients of Beer and Keyes disappeared soon after completion of the treatment and could not be followed, but the striking feature of their results is the small number of relapses. In the nineteen cases reported by Beer, Keyes and Buerger,[7] of which a number were multiple so that the number of separate papillomata represented is much more than nineteen, only one case was known to have relapsed. The majority of these cases had been followed more than six months, and I think these figures compare favorably with the result of the more radical operations. Of the five cases of papilloma, which I treated by high frequency cauterization, only one has been followed for a year. Freedom from recurrence

* In selected groups the results would be more favorable. In a recent number of the American Medical Journal there is a report by Judd[2] of a number of cases at the Mayo clinic; the transperitoneal operation giving a mortality of only ten per cent., and the suprapubic three per cent., the latter in a group of only thirty-three cases. Of course, with much larger groups covering a large number of hospitals and operators, the mortality would presumably be higher.

has been verified in this case, just twelve months from date of the first treatment.*

If high frequency cauterization will destroy the primary growths, its value in the treatment of secondary or recurrent tumors is obvious. Its usefulness is well shown in the following case:

Mr. S., 46 years old, had an attack of hematuria in 1905. He was treated with drugs for two years when the hematuria became severe and he consulted Dr. J. B. Blake. He was cystoscoped and a large papilloma found which Dr. Blake removed by suprapubic cystotomy and curetting in March, 1908. He was free from bleeding for a year and a half; then recurrence was seen with cystoscope, and in December, 1909, Dr. Blake again operated. The pathologist's report was then papillary carcinoma. He was then well for another period of a year and a half, when severe hematuria recurred and Dr. Blake operated for the third time, removing many papillomata from various parts of the bladder. It is interesting to note that these were all pedunculated, without tendency to infiltration of bladder wall. After this operation he went six months only before the bleeding returned. In December, 1911, Dr. Blake referred him to me for high frequency cauterization. With the cystoscope were seen many lobular papillary growths on the top and lateral walls.

Regular sittings from one to two weeks apart were begun and the treatment carried on until April, 1912. The growths had considerably diminished in size but progress was so slow that it seemed best to again remove them by suprapubic cystotomy, and start fresh with the high-frequency current. Accordingly on May 6, Dr. Blake operated for the fourth time, kindly permitting me to assist. The bladder was found practically filled with papillomata, all freely movable and the underlying bladder wall everywhere soft, without any sign of malignancy. The growths were picked up with forceps and cut away with the actual cautery, the base of each being thoroughly cauterized. At the end of this operation it looked as if fully half of the total mucous surface had been cauterized away, exposing the submucosa.

The patient made an excellent recovery and a month later came to my office for cystoscopy. I found eight small papillomata on the lateral walls and apex of the bladder. The mucous membrane elsewhere showed many pale cicatrices but was almost perfectly smooth. The bladder held five oz. of fluid comfortably. I then began high frequency sittings, of which there have been fourteen. At the last one, a week ago, there were seen a pea-sized growth on the right lateral and on the anterior wall, a little cluster of tufts at the front end of the suprapubic scar, which were remains of the original growths, not yet completely destroyed. There was also a tiny fringe of villi, situated on the upper margin of the left ureteral orifice. These I destroyed with two applications of the current for a few seconds only.

The cicatrices elsewhere have remained wholly free from signs of fresh tumor development. Except for a single hemorrhage lasting a few hours, as mentioned earlier in the paper, the treatment has been without any bad effect, the patient has kept at his work, and has gained twenty pounds in the past five months.

During the past six weeks I have treated one other case of secondary growths following within six months of excision of the primary tumor. The bladder shows now the recent cauterization scars only.

During the past two months I have also treated two primary papillomata, one of considerable size, the second about one centimeter in diameter. The latter appears to have been destroyed in two sittings.

A point in connection with estimating the size of these tumors. I have found myself often mistaken in judging their size, and have lately tried the expedient of passing an ureteral catheter, graduated in centimeters, alongside the tumor before attacking it. By manipulation of the cystoscope this enables one to estimate fairly accurately their size in two dimensions at least.

CONCLUSIONS.

1. High frequency cauterization is an important addition to our means of attacking vesical papillomata of the non-infiltrating type.
2. It is free from complications or danger if properly applied with exception of hemorrhage; this appears, however, to be rarely serious or troublesome.
3. It avoids the danger of multiple recurrences such as occur not infrequently after suprapubic cystotomy.
4. Although the cases so treated are too recent for absolute proof of cure, the results are highly encouraging.

* Since I wrote this paper there has come to my notice in this same article in the A. M. A. Journal a brief report of the experience in the Mayo clinic with the High Frequency cauterization. They have used it on some seventeen cases and in the six cases where a year or more has elapsed there has been absolutely no sign of recurrence.

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Medical Progress.

REPORT ON MENTAL DISEASES.

HEREDITY IN INSANITY.—STERILIZATION FROM THE EUGENIC STANDPOINT.—SCHIZOPHRENIA.—THE PARANOID SYMPTOM COMPLEX IN PROGRESSIVE PARALYSIS.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

HEREDITY IN INSANITY.

In a study of heredity in insanity in the light of the Mendelian theory, Rosanoff and Orr[1] give a brief account of the Mendelian theory and come to the following conclusions, based on a large number of cases:—

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition.

2. Actual cases, which were not specially selected, were found to follow the various rules of theoretical expectation with quite as much exactness as could be expected, considering the numerous sources of error.

3. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

4. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness of the patient, etc.

5. The total incidence of neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent. of the general population.

6. It is further estimated that about 30 per cent. of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors, and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

In analyzing the Inborn Factors of Nervous and Mental Disease, Mott[3] deals with the tendency to regression to the normal average of the species and of the race, and with the law of anticipation, or tendency in heredity diseases for the manifestations of the morbid change to appear at an earlier age, either in members of each succeeding generation as a whole, or in successively born children of one parentage. This seems to be one method by which nature seeks either to end or mend a degenerate stock. A number of interesting statistical data and family histories are given bearing on this point. These data seem to show that if the offspring of an insane parent passes adolescence he has a very good chance of not inheriting the taint. In the case of insanity it is also shown how there is a strong tendency to an inheritance of the same type of insanity, which is even more marked between the members of the same co-fraternity than between parents and offspring.

Corson[3] details the results of an inquiry into the occurrence of an inherited tendency to insanity in the insane of a rural population under the following headings: (1) The proportion of cases with heredity predisposition. An insane hereditary influence was present in 31.8 per cent. of cases out of a total of 1,131 cases admitted (males 27.4 per cent., females 36 per cent.). (2) The influence of insane heredity in different forms of insanity. Under this heading the tables show the highest percentage of hereditary cases in manic-depressive cases. In delusional insanity and dementia praecox there is also a high percentage, whilst in cases of senile dementia only a comparatively small number show an insane ancestral history. (3) The relative frequency of transmission of hereditary influence by father and mother, respectively. From the tables, paternal transmission is seen to be greater than maternal (52.8 per cent., as compared with 42.4 per cent.). (4) Direct and collateral heredity. More cases showed insanity in the direct than in the collateral lines of ancestors. (5) The comparative susceptibility of the sexes to hereditary influence. Females showed the greater percentage. A greater number of males inherited from the father than from the mother; as regards the females, the numbers were approximately equal. (6) Cases with evidence of insanity in brothers and sisters only. Where two or more individuals of the same generation of a family are insane, similarity of sex is much more frequent than dissimilarity, and the proportions appear to be about the same as regards the sex. The author then discusses the age at which the first attack of insanity occurred in the hereditary and non-hereditary cases, the recurrence of attacks in manic-depressive insanity in relation to hereditary influence, etc., and concludes his article by detailing several pedigrees of patients in whom heredity appears, from the ancestral history, to act as a strong determining cause.

STERILIZATION FROM THE EUGENIC STANDPOINT.

Clarke[4] questions the practicability and value of sterilization in preventing the propagation of the insane. Among other sensible views, he holds that arguments based upon the experience and methods of stock-breeders cannot fairly be applied to human beings. Breeders of pedigree animals, biologists, and experimenters on Mendelian and other lines are gradually collecting facts and formulating laws of inheritance. They teach us of normal and abnormal variations; they separate the hereditary characters from those due to nurture and environment. Their work is invaluable to the student of eugenics, but they help us but little with the problem of insanity. They shed no light on the transmission of mental qualities, and are concerned purely with the physical. The pedigree heifer is probably a dement; the foxhound is a cheerful imbecile; the fleetest race horse is often an irritable, dangerous rogue. Zoologists and breeders have some great advantages in the study of heredity. They can choose the parents; they can alter the nourishment, and exactly determine the environments. A single observer can watch and record in detail many generations of animals, but it is very seldom that an accurate record can be obtained of even three generations of human beings. It should also be observed that breeders of special strains of animals and of pedigree stock do not propagate from the average animal, but only from the best, only from those who possess in the most marked

degree those qualities which they consider desirable to transmit.

In order to ascertain what proportion of recent admissions to Long Grove Asylum would not have been born if every patient for the last three or four generations had been sterilized before he or she was discharged from the asylum he undertook an investigation resulting as follows: Of 236 cases, 110 gave a family heredity of mental defect (excluding nieces, nephews, and offspring). In 65 cases there was a history of insane heredity, 34 being direct heredity and 31 collateral. The large majority of these 34 insane progenitors were certified, but supposing they had all been sterilized before they had been discharged, in only 3 cases would it have prevented the appearance of the patients under consideration. In all other cases the patient (or his parents or grandparents) was born prior to the certification of the insane progenitor. In two of these three cases even it is doubtful whether sterilization would have been effective; they were both recurrent cases who broke down more than once at the puerperium, and although there is no doubt that they were insane prior to the birth of the patient, diligent inquiry has failed to discover whether they were certified or not. Although these numbers are too small to draw very definite conclusions, they are at least interesting and suggestive. The conclusions from his paper are: Firstly, admitting inheritance to be the most important factor in mental constitution, it has yet to be shown that any practicable scheme of sterilization would materially diminish the normal increase of insanity. Secondly, we have no right to hold out a hope of material decrease from the statistics at present at our disposal. Thirdly, there is urgent need of better record of family histories, which should be kept separate from the present useless conglomeration which compose our statistics. Fourthly, the suggestion is made that the chief danger from the eugenic pojnt of view is the large class of mental degenerates who are not insane. Fifthly, the opinion is expressed that sterilization ought to be recommended in some cases of mental disease quite irrespective of the eugenic standpoint.

Daniel[5] has made a similar investigation and found that only five cases of insanity would certainly have been prevented by sterilization during the years 1909 and 1910 at Hanwell Asylum, where the average number of patients is 2,540. He adds that in the prevention of insanity, insane heredity is only one of the many factors in heredity that have been taken into consideration. The deduction is that any legislation to be effective must be aimed, not at the insane alone, but at all degenerates, whether so in mind or in body. There is one interesting fact about the 81 cases in which both parent and child are or have recently been resident at Hanwell, or one of the other London County asylums, and that is that in 49 (*i.e.* in over 60 per cent.) the paternal insanity occurred about or after climacteric. This naturally refers more especially to women, the age of whose climacteric was about 45; in men the age of this period has been reckoned at 55. Paternal heredity, 29 cases; over 55 in 10 instances. Maternal heredity, 52 cases; over 45 in 39 instances.

At first sight it might be thought from this study of paternal heredity that insane heredity is not of such vital importance in the production of insanity as is usually supposed, but this would be a fallacy due to considering the question from too narrow a point of view. A family may be absolutely free from the taint of insanity (*i.e.* no member of the family has ever been certified as insane), and yet teem with instances of mental and physical degeneracy, hysteria, epilepsy, criminal imbecility, etc. It should be recognized that these are of equal importance with insanity when arising among the forebears. Insanity may be only one of numerous signs of degeneracy in a degenerating family; the inheritance is, in fact, not so much the inheritance of insanity as the inheritance of degeneracy. This degeneracy may show itself in various forms, such as arterial or renal disease, epilepsy, insanity, intolerance of alcohol, liability to tuberculosis, etc. The deduction as regards sterilization is this: Even if epileptics, lunatics, imbeciles, and criminals were all prevented from reproducing the species, yet insanity and other forms of degeneracy would still occur in degenerating families. The degeneration of the family is as natural as the death of the individual. The question to answer is, Should Nature's methods of dealing with degenerate families be hastened by sterilization? To answer this question satisfactorily much fuller knowledge must be obtained about degeneration in families, and it is impossible to obtain this without taking the family history in the form of a pedigree with full particulars of each member of the family. Surely we are justified in assisting Nature by preventing the birth of degenerates, provided that some practicable method can be proposed for dealing with this degenerate mass. Sterilization is sure in its action, but absolutely impracticable. No government is strong enough to bring forward a measure which would affect the immediate relatives of a large proportion of the electorate, for degeneracy ramifies through every class from the degenerate nobleman to the epileptic pauper. Sterilization, too, would be a measure more fitted for a Spartan government than for a modern government with its altruistic ideals. Segregation is far more practicable, but to be completely effective it must be applied to such a large proportion of the population that complete segregation must be regarded as impracticable on account of the enormous financial burden involved. It might, however, be applied to the most degenerate of the population, though it would be hard to draw a definite line between those to be affected and those not; it might be applied to all epileptics, habitual drunkards and criminals, and also to the recurrent insane.

SCHIZOPHRENIA.

Hoch[8] pronounces the work of Bleuler on dementia praecox undoubtedly one of the most important contributions which have been made to psychiatry for a long time. The most admirable part is the symptom-analysis which contains much that is of great value to every psychiatrist. It is necessary, first, to be clear as to what Bleuler means by schizophrenia, and what he includes in this group, because it comprises a great deal more than the group of dementia praecox, such as others conceive it. With the exception of manic-depressive insanity, which to him is small, the few cases of Kraepelinian paranoia and hysteria, everything within the functional group of psychoses is dementia praecox. Nor is it to be wondered at that, in this dementia praecox, only a comparatively small number of marked deteriorations occur. Bleuler puts the figure at 22 per cent., while 18 per cent. present a moderate degree of deterioration, and as many as 60 per cent. a mild degree of deterioration. He claims, however, that there is no case in which some defect is not seen, but this defect is sometimes very slight and may amount to not much more than a lack of adequate insight. In order to understand this we must be familiar with his conception of latent schizophrenia. Bleuler considers that probably the largest number of cases belonging to the group of schizophrenia are latent cases who rarely come to asylums. There are cases which are looked upon as nervous people or as psychopaths; among them he describes irritable persons who cannot get along well, individuals with oddities, or those who are reticent, seclusive, or present an exaggerated scrupulousness and precision, and so forth. He admits that they are often difficult to diagnosticate, but that they must have some of the fundamental symptoms, that is, a certain defect of logic, shut-in-tendencies, or affective anomalies, more particularly a lack of interest in things which ought to interest them. Among the fundamental symptoms, by which he means symptoms which are always present to a certain extent in active as well as latent schizophrenia, he mentions, above all, a disorder of the association process, that is, a primary loosening of the connection. He also mentions abnormalities of the affective life, particularly a more or less extensive loss of interest, and that which he calls by a very good term "autism," that is, the tendency to turn away from the outside world, or to that which Hoch has called shut-in tendencies. He also mentions other features, but these are the most important.

The supposed disease process he is inclined to regard as associated with some poison, and he takes the analogy of rheumatism, which may be either chronic or acute, which may last a lifetime or may stop. The primary symptoms, which he attributes directly to this underlying disease process, he also admits are not definitely known, and it should be stated that Bleuler is very open in his theorizing and speaks of it as tentative. However, he is inclined to think that the association disorder, that is, as I said, a loosening of the associations which gives rise to elisions, to marked defects in logical thinking, even to imperfect concepts, etc., is a primary defect. As we shall see, Bleuler explains a great deal in the clinical picture of schizophrenia psychologically on Freudian mechanisms; the blocking and other disorders in thinking, acting, and feeling, are referred to a great extent to this. But he is evidently of the opinion that is not enough, but that some fundamental disorder must be assumed to make such extensive complex manifestations possible.

In spite of his conviction of the importance of psychogenesis for the production of symptoms, and even acute syndromes, he lays very little stress, in his chapter on etiology, upon the mental causes. The reason for this is quite clear; it is because the mental causes do not produce the disease, but merely some symptom, and as a matter of fact he has very little to offer in the way of etiology. According to Bleuler, mental causes produce attacks, but the disease has existed before.

Late katatonias often begin as involution melancholias, and are then to be regarded as schizophrenias. Depressions are very common in schizophrenia, and, if I understand him correctly, any hallucinations which are not in harmony with the mood, oddities in behavior, or any peculiarities in make-up, would at once put the case into schizophrenia. Ten per cent. of his dementia praecox cases are alcoholics, who take alcohol on account of their dementia praecox, and he claims never to have seen the sequence of alcoholism-dementia praecox, but only that of dementia praecox-alcoholism.

Hoch's review of Bleuler's schizophrenia, of which this is a very brief abstract, is discriminating and full of interest. It gives an excellent idea in comparatively small compass of the first comprehensive work on a subject in psychiatry, in which the principles of psychoanalysis are made extensive use of.

THE PARANOID SYMPTOM COMPLEX IN PROGRESSIVE PARALYSIS.

Kern[9] reports four cases of general paralysis in which the paranoid symptom complex was in the foreground. Although conclusions from such a small number cannot be drawn, nevertheless he considers his studies stimulating for further investigations. It is particularly important to note that a paranoid symptom complex usually occurs in atypical cases. They are stationary, or present focal symptoms (Lissauer), or the posterior columns are involved. The paranoid ideas do not become fixed or systemized because of disintegration of personality. The question of endogenous and exogenous origin of the paranoid symptom complex is inter-

esting, and if anatomical bases for this symptom complex could be determined, then an actual progress towards the recognition of psychotic disease-picture would be made.

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(*To be continued.*)

Reports of Societies.

AMERICAN UROLOGICAL ASSOCIATION.

FALL MEETING OF THE NEW ENGLAND BRANCH IN CONJUNCTION WITH THE HARTFORD MEDICAL SOCIETY, HUNT MEMORIAL BUILDING, HARTFORD, CONN.

MONDAY EVENING, NOVEMBER 18, 1912.

PRESIDENT, DR. HUGH CABOT, BOSTON.
SECRETARY, DR. R. F. O'NEIL, BOSTON.

Opening remarks by OLIVER C. SMITH, M.D., President of The Hartford Medical Society:

At the urgent request of The Hartford Medical Society, The New England Branch of The American Urological Association has come here to deliver a symposium at their regular quarterly meeting. Many of you members of The Hartford Medical Society will remember that four years ago this Branch of The American Urological Association came to us, and we had a most interesting and instructive evening on the subject of Hematuria. Some of you have joined the Hartford Medical Society since that occasion, and for your benefit I will say that The American Urological Association was formed at Saratoga in 1902. It was then a small organization, promoted for the advancement of the science of Urology, the treatment of diseases of the renal tract. From that time the Association has grown until it has now a membership of 350, all the states of the Union being represented. It is divided into sections, this being the New England section; there are the New York section, the Southern section, Chicago and Pacific Slope sections. These sections have quarterly meetings, and the general Association has annual meetings. The proceedings of these quarterly and annual meetings are published, and mark the progress of Urology in America.

Possibly in no field of specialization has there been more marked advance made and more good done for the benefit of humanity than in this field of Urology. This Association was formed at the time that the wondeful work of Nitze and others was impressing itself upon us, and we had just commenced to appreciate the great advantages of cystoscopy and ureteral catheterization. It is a record of marvellous expansion and growth, which has changed an uncertain diagnosis into one of scientific certainty.

It is a great pleasure to have those gentemen who have been foremost in the work in this country, and a number of them are men of national and international reputation, come here to deliver the lectures which otherwise would have been given in Boston.

At the present time Dr. Hugh Cabot of Boston is chairman of the New England Branch of The American Urological Association. I take great pleasure in introducing Dr. Cabot, and will now turn the meeting over to him.

DR. HUGH CABOT, Boston: I am sure it is a very great pleasure for us to meet here this evening; and I think that without casting any aspersions upon the Boston membership of the Branch it is perfectly clear that we have a far larger and more appreciative audience in Hartford than we could have obtained in Boston.

The first thing upon the program is:

THE DEMONSTRATION OF SPECIMENS AND REPORTS OF CASES.

DR. PAUL THORNDIKE of Boston:

SPECIMEN OF TUMOR OF THE TESTIS.

This tumor is an embryoma; and it is interesting because it is typical, and because there seems to be growing belief, and a growing amount of proof attached to it, that most tumors of the testis are of embryonic origin. Pathologists at the present time call such tumors embryomata if the cells remain undifferentiated instead of differentiating themselves and demonstrating other tissues in their structure.

KIDNEY SPECIMEN.

The other of my two specimens is a so-called hematogenous kidney. There is nothing unusual to say about its clinical history; it presented the usual picture of an acutely infected kidney on the right side, with the usual pain and tenderness; there was systemic disturbance ushered in by a chill. The kidney was removed and the patient convalesced promptly.

Pathologist's report.—"Specimen consists of a kidney considerably enlarged (about 250 grams) and incised from the convex surface through to the pelvis. Thorough examination of kidney is impossible owing to request that it be preserved in toto. A thin slice was taken from one cut surface for microscopic purposes. No cultures possible.

"The cut surface shows numerous large and small areas running from pelvis to cortex and spreading out, deeply congested and studded with greyish to yellowish points and streaks.

"Microscopic examination shows an acute diffuse inflammatory process spreading upward through the tubules and in some instances reaching the glomeruli. Nowhere does the infection start within glomeruli. The tubules in many places are distended and contain polymorphonuclear and endothelial leucocytes. In places the lining epithelium is partly too completely destroyed. In this way small abscesses are being formed. The inflammatory process has also extended to the intertubular tissue which is infiltrated with numerous polymorphonuclear and endothelial leucocytes and also many lymphocytes and occasional eosinophiles. Fibrin is fairly abundant in places.

"The only organism present is a small bacillus, unquestionably the colon bacillus. It occurs in small numbers almost exclusively within polymorphonuclear leucocytes. A single leucocyte will contain one to a dozen organisms.

"*Diagnosis: Acute ascending infectious nephritis.*—The term surgical kidney is commonly applied to the chronic form of infectious nephritis with more or less complete destruction of the kidney

from abscess formation and ulceration extending out from the pelvis.

"The acute form is usually due to the colon bacillus which reaches the kidney through the ureter and pelvis, often without causing any noticeable lesion. In mild cases repair takes place because often no abscesses are formed, only necrosis of the tubules and increase of the connective tissue.

"This type of lesion in the kidney corresponds to infectious cirrhosis and pancreatitis, due to the colon bacillus gaining entrance through the ducts. It is probably never of hematogenous origin."

(F. B. Mallory.)

Now, here is a perfectly typical case, with a perfectly typical history, with a perfectly usual operation, and a perfectly typical recovery, which the pathologist declares is an acute ascending infection of the kidney. And he also declares that you cannot have such a thing as a multiple hematogenous infection of one kidney. In other words, the pathologist states that if you get what has been described as an acute hematogenous kidney with multiple lesions that the infection begins in one spot, works it way down to the pelvis of the kidney, and then, makes other ascending infections from the original one by way of the pelvis; so that these conditions are not, strictly speaking, acute hematogenous infections at all, but ordinary ascending infections usually coming up from below, occasionally from a cortical infection which has worked down and into the pelvis, and so made it possible to get by an ascending process these other foci of infection.

Dr. Cabot: I believe it is customary that after these presentations the questions shall be discussed. There are various points suggested by the cases which Dr. Thorndike has shown that I should like very much to have discussed. I think this is a very appropriate time to do it, and I trust you will not be backward about doing so.

In the first place, I would like to ask what conclusions, if any, you could draw from the tumor of the testicle in regard to the length of time between the discovery of tumors of the testicle until the diagnosis can be made by ordinary clinical manifestations.

Again, I would like to ask whether he intends to assent to the wonderful opinion of the pathologist, which appears to me to be wholly at variance with everything that has developed in the last ten years or so on that subject. Is this his opinion or his pathologist's opinion; and whether, if it is his pathologist's opinion, he agrees with it?

Dr. Thorndike: First, as for the tumors of the testis: These testicular tumors should be explored and looked at every single time. It is also my feeling that in spite of the lack of knowledge of the exact pathology of these testicular tumors in the past, the old clinical fact remains true that, whether or not they display clinically evidences of malignancy, they do tend to behave badly in the long run; that they should be explored; and, if necessary, removed. In this case the tumor had been growing only nine months so far as the patient knows. He was a man forty years of age. We discovered a number of nodules in the belly which the man himself never questioned and knew nothing about.

As for the kidney, I meant only to show what to me was an interesting specimen, which would give a possibility for some pathological discussion which I am not capable of continuing very far.

Dr. Mallory believes that renal infections come in one of two ways; either a straight septicemia, in which, if you get abscesses in one kidney you are going to get them in the other, and probably elsewhere; or, that you have got a single infection, possibly of hematogenous origin, which gives rise to these subsequent ones. I personally agree with this belief, in spite of the fact that Dr. G. E. Brewer and others have demonstrated the possibility of hematogenous infection of injured kidney in animals.

Dr. C. E. Taft of Hartford: Presented

A SPECIMEN OF RETROPERITONEAL FIBRO SARCOMA.

The patient from whom this tumor was removed came into my office on June 3, 1912, with a history of a previous operation four years ago for supposed fibroid tumor of the uterus. At the operation it was found that this was a tumor of the right kidney. Consent could not be obtained for a further operation at that time. The patient then decided to postpone the operation until her visit to me. The only symptoms she presented aside from the growth of the tumor and the inconvenience caused by its size were pain in the back muscles from muscle strain and a varicose condition of the veins in the right leg due to pressure of the growth. She did not present any symptoms of cachexia whatever. A small uterus, not connected in any way with the tumor, and a lacerated cervix were also noted.

The tumor extended to the margin of the ribs and to the left side half way between the umbilicus and left anterior superior spine, the colon could be very easily palpated, lying very close to the umbilicus. An incision was made through the right rectus sheath to the capsule of the tumor. We then decided to investigate the condition of the left kidney and, therefore, opened the peritoneum to the inner side of the colon and were able to get our hand in, but with difficulty, on account of the size of the tumor. So far as we could tell the kidney was normal. We had previously tried to catheterize the ureters and were able to catheterize the right ureter leading up to this tumor, securing a normal urine, but were unable to find the left ureter.

On investigating the condition of the abdomen further we also found some old adhesions about the gall-bladder but could not determine exactly what they concealed on account of the size of the tumor.

We had some difficulty from hemorrhage and shock, the patient's pulse going up to 150 at one time during the operation. Stimulation and Trendelenberg's position promptly brought the pulse down to 100 beats per minute.

The tumor was fastened to the posterior surface of the right kidney just above the attachments of the renal vessels. On removing it from its capsule we tore a hole about one and a half inches long in the kidney which we were obliged to sew up with three mattress sutures.

The tumor was encapsulated, the capsule arising from the fascia, as near as we could tell. We were only able to remove a portion of the capsule of the tumor. The weight of the tumor was six and one-half pounds.

We inserted stab drainage in the sac through the right loin, and then sewed up our anterior incision. After removing the drain on the second or third day we had a little air get under the skin which was absorbed after three or four days, then we had no further trouble until at the end of the tenth or twelfth day, a small abscess developed in the sac and discharged through the median incision.

The patient left the hospital in a month the wound having entirely healed.

This tumor was examined by Dr. P. D. Bunce and Dr. H. G. Jarvis and found to be a fibro sarcoma. These are rare as only a few cases over a hundred have been reported in the journals to-date.

DR. CABOT: You are to be congratulated on getting away with a tumor of that size and the patient at the same time. Various of us have gotten away with the tumor but not with the patient.

SYMPOSIUM ON RENAL AND VESICAL NEOPLASMS.

THE SYMPTOMATOLOGY OF RENAL TUMORS.*

DR. J. D. BARNEY, Boston.

THE EARLY RECOGNITION OF TUMORS OF THE BLADDER.†

DR. A. L. CHUTE, Boston.

OBSERVATIONS ON RECENT CASES OF BLADDER TUMORS AT THE MASSACHUSETTS GENERAL HOSPITAL, WITH SPECIAL REFERENCE TO OPERATIVE TECHNIC.‡

DR. R. F. O'NEIL, Boston.

THE VALUE OF HIGH FREQUENCY CAUTERIZATION IN THE TREATMENT OF BLADDER TUMORS.§

DR. H. BINNEY, Boston.

DISCUSSION.

DR. HUGH CABOT, of Boston: There are many interesting points in these papers, and there is one point of particular importance that I hope we shall get some information on—Whether hypernephromata show any consistent change in the blood pressure. It is, as you all know, described as of adrenal origin; but considerable doubt has been raised I think, by the apparent fact—becoming more apparent—that they do not show any changes in the blood pressure mechanism which one would expect if they were a reproduction of adrenal tissue. That seems to me likely to start opinion away from the views once held.

The name of "Keyes" has been taken in vain here several times tonight. Now he has a chance to defend himself—Dr. Keyes.

DR. E. L. KEYES, JR., of New York: I have had so much more experience in the high frequency treatment of bladder papillomata than in any other of the points relating to neoplasms of the urinary tract that I am sure it will be more interesting to you if I confine my remarks almost exclusively to this. Permit me to preface, however, with one remark in reference to tumors of the kidney.

It had always been my impression from reading of these tumors that it was practically impossible for a tumor in the kidney to bleed so profusely as to cause clotting of the blood in the bladder. As a matter of fact I have had three cases of bleeding from a neoplasm in the kidney of sufficient severity to cause retention of urine by an accumulation of clots in the bladder. Two of these cases were hypernephromata, and the third a papillary tumor of the pelvis of the kidney.

To proceed to the high frequency treatment of bladder tumors: One of the most important features of this treatment is the very one that Dr. Binney has so unkindly left open for me to discuss. That is, the question as to what tumors should be treated intravesically by electricity and what tumors should be operated upon at once. I need not insist that the worst thing that can be done to any patient with a malignant tumor or a potentially malignant tumor is to lose time in the removal of that tumor. Inasmuch as these high frequency treatments of bladder tumor can usually not be repeated oftener than once a week (and, indeed, it usually seems convenient to burn not oftener than every two weeks) you can well understand that a diagnosis which comes only by means of a failure to remove this growth by an attempt at cauterization may imply a delay of several months, a delay which may well be fatal to the patient. Therefore, it is to the last degree important that we determine as early as possible what tumor is amenable to this form of treatment and what tumor is not.

All of us who attempt this mode of treatment must classify the signs of malignancy of bladder tumors according to an entirely new point of view. Malignancy of a bladder tumor is not precisely what Dr. Chute calls it, including bleeding and cystitis; it is not precisely what the pathologist calls it, a tumor which shows by a section of its base evidence of carcinomatous change, for I have reported such a case cured by electricity, and, I think, Dr. Binney treated one case which he thinks he is in a fair way to cure of a tumor which had been previously declared to be carcinoma by the pathologist. Hence, the pathologist's diagnosis is not infallible as regards the clinical view of malignancy. *The clinically malignant tumor is the tumor which is not curable by the electrical treatment through the cystoscope.*

The signs of malignancy, so far as I have made them out, are as follows: Multiplicity of tumor; size of tumor; infiltration of the base of the tumor; sloughing; intractable cystitis. It has been quite impossible for me to determine cystoscopically whether the base of a papilloma was infiltrated or not, because the villi so overshadowed it that one could not see the base with the cystoscope. By an infiltrated base I mean a base of a tumor which can be felt by rectal, suprapubic or bi-manual examination as an indurated area or a lump somewhere in the bladder wall. Further, there is a cystoscopic appearance that is suggestive of malignancy; and that is a sloughing surface of the tumor or an ulcerated surface of the tumor. Then, there is a clinical symptom that is peculiarly indicative of malignancy. That is severe, intractable cystitis, so severe as to cause very frequent and painful urination, so severe as to torture the patient, and to render cystoscopy extremely difficult and painful, if not impossible; a cystitis which is entirely beyond treatment by any local measures.

Papillary tumors, whatever their size, are, in my experience, amenable to cystoscopic treatment, to high frequency current. Of course, it is perfectly possible for either a small or a large papillary tumor to have an indurated base, which indurated base may appear after the palliary tumor has been burned out. In an experience, however, with some fifteen patients I have only found one (and that, curiously enough, a small papillary tumor), which was not amenable to treatment by the high frequency current. That tumor showed a symptom which I have not mentioned; that is, constant hemorrhage in spite of burning. This man I burned six or seven times and yet he kept on bleeding. I infer that this bleeding was a sign of malignancy in the sense that his tumor certainly is not going to get well by cauterization at my hands.

You may think I am carrying my treatment to excess. I had a case of an old gentleman, 79 years of age, thin and feeble, who bled at intervals, for

* See JOURNAL, page 300.
† See JOURNAL, page 302.
‡ See JOURNAL, page 305.
§ See JOURNAL, page 308.

twelve years, constantly for two years. It did not seem practical to attempt a major operation upon him; so, for the purpose of seeing if I could give him relief, I began to burn his bladder tumor. I burned it for eighteen months before I could tell from which side of the bladder the tumor grew. Yet, the bleeding stopped after the first burn. I am burning him yet. And at the end of two years (he is 81 years old now) his tumor is reduced to a little lump not more than a centimeter in any of its diameters. I have burned away three or four secondary tumors. He is in a fair way to be cured.

Multiplicity of growth indicates a greater tendency to malignancy, certainly, than a single growth shows. Notwithstanding, in my own fifteen cases four were multiple; and as I didn't include one that I burned a few times and then sent back to the physician who sent him to me, making five multiple cases, you will see that one in three of my cases were multiple. All of the multiple cases that I have carried through have been cured.

The next point—Inveterate cystitis defies intravesical treatment; ulcerated tumor absolutely cannot be cured by cystoscopic treatment.

I have seen two cases similar to the one mentioned by Dr. Chute, which I have not included in this series because I am not sure that they are tumors. They showed slightly ulcerated surfaces of the bladder wall, which bled profusely. One of these I operated upon, thinking it was possibly carcinoma, and I found white spots, indicating leucoplakia of the bladder. I burned it in another case with the high frequency current, but I didn't succeed in stopping the bleeding. I think these conditions with slightly ulcerated spots in old persons are evidences of leucoplakia and not of true tumor.

Now, in the past two years and over I have attempted to cure by the cystoscopic treatment all of the papillary tumors that have come to me. One small one, as I stated, I have failed to cure because, I believe, it is malignant in the clinical sense. Of the remaining fourteen nine have remained cured for one or two years. Of the remaining five one was the old gentleman referred to; the others are more or less recently apparently cured. The largest one that I treated I showed to Dr. Cabot when he was in New York a few days ago; a small papilla only remaining of four tumors I had removed, and that was very readily burned away. Of these fifteen patients treated with the high frequency cauterization, with the exception of the one that proved malignant, one has relapsed after an apparent cure of one month. These cures I myself verified by the cystoscope.

Of those that have been apparently cured for from one to two years (there were thirteen tumors in nine patients): Three were cured by one burn; two were cured by two burns; one was cured by three burns; three were cured by four burns; two were cured by five burns; one was cured by 12 burns; one was cured by 19 burns.

It is interesting to note the average number of burns in each case. The total number of treatments was eighty-seven for thirteen patients, which is an average of between six and seven burns to a case. And that means a treatment covering anywhere from two to three months, which is probably the average time required.

Another point—the duration of the symptoms. One man had his first bleeding fifteen years before the treatment—he was cured in four burns. On the other hand, another man had symptoms only eighteen months. He had a very large tumor, which it took me nineteen burns to cure, the second longest in my experience. So that the length or duration of the symptoms does not indicate the length of time that will be required to cure.

Dr. J. W. Keefe, Providence: I don't know that I can add a great deal to what has been said. I might, perhaps, emphasize some of the points brought out in some of the papers. I believe that there is a transitional period coming on with the pathologist; and that the pathology of some of these tumors of the kidney is to be rewritten; Dr. Wilson of Rochester, Minnesota, suggests that most of these tumors are not true tumors of the kidney. And I believe that other noted pathologists are coming to that belief with him. I presented a case where the pathologist reported sarcoma of the kidney, at that time the chairman stated that sarcoma of the kidney seldom occurred. Later on the pathologist came to the conclusion that it was not a sarcoma of the kidney but sarcoma of an embryological rest. So that the chairman was correct in his view.

In reference to Dr. Barney's statement that often these tumors become of large size without being recognized, I recall a case of a tumor, perhaps half the dimensions of the one in the jar on the table, where the patient had not had hematuria, and had noticed the growth but one week before. It seemed incredible that she should have carried this tumor about and not have known that there was some derangement there.

It occurred to me in listening to the reports of the different cases that, while some of these operations appeared to be brilliant at the time, the ultimate results, particularly in malignant cases, are not particularly good. We have still something to learn, perhaps, about the method of removal. It may be that the high frequency current may do more for us; but it would appear that it is only of value in the benign cases. And yet many tell us that these benign growths ultimately become malignant, while we have clinical evidence that some of these people have had these growths for fifteen or twenty years, as high as twenty-seven years, with occasional bleeding. So it is rather difficult to state just what cases should be operated upon and what cases should be treated with the high frequency current.

The transperitoneal operation appeals to me more than the suprapubic if one has to remove a growth in the bladder. The Trendelenburg position affords an exposure of the bladder where one can very readily attack the growth. Dr. Chute mentioned the fact that the ureter catheter placed previous to doing the transperitoneal operation would materially assist in removing tumors of the bladder. That I have done in some instances for the removal of fibroid and it is a very valuable thing to have in the catheter at the time of the operation. It would seem to me in Dr. O'Neil's cases where he had difficulty in finding his ureter that if he had introduced his catheter previous to his operation he might have been able to excise his growth and still find the end of his ureter and be able to transplant it.

Dr. Hugh Cabot, Boston: I want to say a few words before the meeting adjourns. I don't know whether or not it is equally true in other fields, but it seems to me that in Urology the pathologist has been a source of trouble for years. We find in clinical experience that patients do not die of malignant tumors sometimes, and do die of non-malignant tumors. While we may be interested in knowing

what the pathologist's opinions are as shown by the microscope the thing that the patient is interested in is what is going to happen to him; and that is not descernible from the report of the pathologist. Dr. O'Neil reported one of our cases in which the tumor removed a year ago was pronounced malignant; sometime later it recurred and the pathologist reported it non-malignant; I don't know what his next report will be. Dr. Thorndike has reported a case tonight in which the pathologist has begun to change his views in the matter of ascending infections. Clinically few urologists now believe that ascending infections play any important part in these lesions of the kidney. I think we must reconstruct our pathology in relation to certain of these tumors of the bladder on a more clinical basis. And I am very much interested in Dr. Keyes' view, because we must reach a method of deciding whether or not these cases should be dealt with by high frequency cauterization or by radical operation. In many cases it will be a guess, and we shall have to make up our minds whether a treatment extending over two, three, four or even six months by any method will not be to the disadvantage of the patient.

The infiltration of the base is the most important point though in the case of some tumors that cannot be decided.

My own experience of late years has been rather the opposite of that of Dr. Keyes. I have been operating upon most of my cases, and cauterizing a much smaller number; largely, I think, because most of my cases are of the peripatetic hospital variety which I cannot put in jail and cannot keep them within reach by any other method. The patient in a general hospital had probably better be operated upon because if treated by cauterization he may not return. I don't know the method of Dr. Keyes but whatever it is his patients apparently stick; our patients do not stick; and it is probably in their interest to operate in the majority of cases. And partly for this reason—I feel very sure that a papilloma of considerable size removed by operation gives you a hold on the patient which will enable you to finish the work by the intra-urethral method; and watch for recurrences. It seems to me perfectly clear that in the cases which recur promptly after operation the treatment should be by the high frequency current; and if one has gotten hold of the patient by first stopping his hematuria he can probably be persuaded to come back for cauterization. We have much better success in having the patients come back to us following operation than when trying to manage them in the dispensary. This is not so true with our private patients, and they of course reap a benefit that the hospital patient does not.

Dr. O'Neil spoke of two cases of ours of re-implantation of the ureter; and Dr. Keefe referred to these cases in regard to the use of the ureteral catheter in establishing the position of the ureter. In the two cases Dr. O'Neil referred to the growth entirely surrounded the ureteric orifice and it could not be found. Under these conditions you must entirely disregard the ureter. If you go slicing along trying to keep away from the ureter you are going to leave some of the tumor. You must entirely forget that there is any ureter. Find your ureter afterward if you cannot find it before. Do not bother about the lower end, but afterward go up toward the iliac vessels and pick it up. I don't believe that implantation is quite so difficult a business as we have been taught to believe. I have done it in seven cases; the first, seven years ago. It was a most hopeless case, and yet that patient is still living and with a clear urine. It was the most obviously hopeless case you could find. I am still willing to resect considerable portions of the bladder in rather unfavorable cases because I know that some of them which seem the worst get well, whereas many of them which seem best promptly die. Resection of the ureter must be undertaken when the ureter is in the way; and I don't believe that it adds heavily to the mortality.

DR. J. D. BARNEY, Boston: I have nothing special to add except this:—In what little experience I have had with the high frequency treatment as applied to bladder tumors I have found that selection must be employed to some extent. In many cases we cannot use this treatment because they cannot stand cystoscopy once a week or even once in two weeks; one patient whom I burned nine times in as many weeks I could have cystoscoped nine times a day and he would not have felt it; another patient has a very serious time of it no matter what the interval between cystoscopies is, and, yet, his tumor is small and gives one the impression of being an easy matter.

DR. H. BINNEY, Boston: I think Dr. Keyes' points in regard to the selection of cases very helpful indeed, but even with their aid, I believe that there are cases in which doubt will arise as to the propriety of continuing this method of treatment. In such cases I think our course should be as follows: If, in any doubtful case after a few weeks of high frequency treatment, progress in destruction of the tumor is not satisfactory, we should resort to suprapubic removal; then if fresh tumors appear, either at the original site, or elsewhere, and appear to be benign, they can be easily handled by high frequency cauterization; on the other hand, if the tumor recurs as an infiltrating epithelioma, which could not have been cured by high frequency treatment, we have at least done the best for the patient that our present knowledge offers.

DR. OLIVER C. SMITH, Hartford: I will not attempt to enter into any scientific discussion on this subject; it has been most brilliantly gone over. But I want to call attention to this feature of the papers that have been read; they are original papers; they have been papers not taken from text-books, but papers which precede the text-books, and that later on will appear in the text-books. These men are making history in Urology. That is the feature of the work here this evening.

If there is anything more than another that has impressed me with its importance tonight, it is the fact that we must all of us redouble our efforts in determining directly when patients come to us with hematuria, pain and other symptoms, what steps ought to be taken. If we haven't time to investigate, the case must be turned over to some one who has the time and the ability. This field of tumors of the bladder and kidneys has been sadly neglected, and many of these disorders have been permitted to go until they were irreparable.

Urology is a specialty; the men who are doing this work are the men to handle it, and it is our duty as general practitioners and general surgeons to recognize that, and at the early stages turn these patients over to these men who are skilled in this work.

I wish to extend my thanks to the men who have come here and made this so interesting an evening.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.

MEETING OF FEBRUARY 17, 1913.

DR. W. B. CANNON and DR. HENRY LYMAN read a paper on

THE DEPRESSOR EFFECT OF ADRENALIN.

Stimulation of an adrenal gland, or splanchnic stimulation after excluding splanchnic vessels, results in the cat in a fall of blood-pressure due to vasodilation.

Injection of small doses of adrenalin (*e.g.* .1 to .5 c.c., 1 : 100,000) at a uniform slow rate (*e.g.* .02 c.c. per second), into a cat causes a similar fall of blood-pressure. This effect varies, within limits, with the dose and with the rate of injection. Repeated doses causing vasodilation have a cumulative effect. The percentage drop in a given case is usually constant for the same dose, given at different initial pressures.

The depressor effect of adrenalin is changed into a pressor effect after pithing and after extreme depression from depressor stimulation combined with repeated relaxing doses of adrenalin. During the drop in pressure after pithing the brain, the action of adrenalin may reverse from depressor to pressor. It reverses with high temperature (44° C.).

The depressor effect does not occur if arterial tension has been much lowered by nitroglycerine.

The reversal from depressor to pressor action after pithing can be again reversed to depressor action by ergotoxine (Dale).

There are good reasons for believing that the depressor effect is not of central origin, is not due to blocking of vasoconstrictor impulses, or to stimulation of supposed vasodilator sympathetic endings by adrenalin.

The two effects, vasodilation and vasoconstriction, may be attributed to opposite actions of adrenalin according to the state of the muscle-relaxation when tonically shortened, contraction when relaxed. Other instances of like character are known.

Book Reviews.

A Treatise on Diseases of the Hair. By GEORGE THOMAS JACKSON, M.D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University; and CHARLES WOOD MCMURTRY, M.D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, New York. Octavo, 366 pages, with 109 engravings and 10 colored plates. Philadelphia and New York: Lea and Febiger. 1912.

This is by far the best practical book on diseases of the hair that has been offered to the medical public of late years. Dr. Jackson's well known ability and care in compilations would ensure the success of any such publication of which he was the author, and the work has in fact been excellently done. The writers have with good reason drawn largely on the works of Sabouraud on parasitic diseases, and of Darier on the subject of histopathology. Many very excellent illustrations have been taken from these writers. In fact, the illustrations as a whole are exceedingly well chosen, and good modern pictures are not, as is so often the case, interspersed with illustrations made many years ago that have been passed along from one textbook to another. The chapter on ringworm is very well compiled and beautifully illustrated. The value of the book from the point of view of the general reader is added to by the fact that it does not represent individual opinions, but offers a clear and fair exposition of the theories that are sustained by reliable observers. The pages on the etiology of alopecia areata are a case in point. In brief, we can truthfully say that this treatise on the hair seems to us admirable from every point of view. It is hard to see how a book on these lines could be made better.

Psychotherapy. Including the History of the Use of Mental Influence, Directly and Indirectly, in Healing and the Principles for the Application of Energies Derived from the Mind to the Treatment of Disease. By JAMES J. WALSH, M.D., Ph.D. 8vo. pp., xvi, 806, with 34 illustrations. New York and London: D. Appleton and Company. 1912.

This is a work on psychotherapeutics with a difference. Imagine a large volume on this subject with comparatively slight reference to hypnotism, a passing allusion or two to Freudism, a casual mention of psychoanalysis, written in clear, simple language, without the neologisms of abnormal psychology, and with the subconsciousness accented on the *sub!* The author is not ignorant of all these things and we strongly suspect that he could "drink with any (Freudian) tinker in his own language" if he were so inclined. His psychotherapy, however, is mainly the psychotherapy of education, and hypnotism and psychoanalysis are wisely subordinated. The title, to be sure, is something of a misnomer for beside psychotherapy proper he discourses at considerable length upon the general management and care of the patient, apart from the administration of drugs, dwelling fully upon the many petty details which often make so much for comfort and contentment, such as the arrangement of pillows, attention to the feet, the character of the patient's reading and the like,—details which are seldom even hinted at in the ordinary treatises. The book is characterized by wide general knowledge of men and books, sound judgment, sanity and sound common sense. It should be read—and it is very readable—by every physician and medical student, and it would do the laity no harm. Perhaps—perish the thought!—it might do more good than all the works of the Freudians. Was it incidentally the author's Archimedian heterophemy that led him to ascribe the well-known quotation from the Agricola on page 379 to Cicero?

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MAIMONIDES.

ONE of the most famous of medieval Jewish physicians was Moses Ben Maimun, generally known as Maimonides, whose full name in Arabic, however, was Abu Amram Musa b'n Maimun Obaid Allah. He was born in 1135 A.D. at Cordova (Corfu) in Spain, then one of the leading centres of culture, but was obliged early by the persecutions of Almohades to flee to Fez, and thence in 1165 to Egypt, where he settled at Fostat, the old city of Cairo. Here he lived, studied, and produced his numerous writings, and here in 1204 he died.

During his residence in Cairo, Maimonides became physician to Saladin, and through him came into relation with Richard Coeur de Lion. Maimonides was a scholar and a philosopher as well as a doctor, and the majority of his works deal with religious and political subjects. His principal medical work, "Pirke Mosheh," has been recently reviewed in the issue of the *British Medical Journal* for Jan. 11 (page 82).

"Maimonides records that every morning he went to the palace, and if any of the numerous officials and dependents there were ill he had to prescribe for them, getting back to his own house in the afternoon when 'almost dying with hunger.' There he would find, in his own words—

"Jews, Mohammedans, a varied crowd who are seeking my medical advice. There is scarcely time for me to get down from my carriage and wash myself and eat a little, and then until night I am constantly occupied so that from sheer exhaustion I must lie down. Only on the Sabbath day have I the time to occupy myself with my own people and my studies, and so the day is away from me.

"Maimonides wrote on philosophy as well as medicine. The most interesting of his writings was a series of letters on dietetics written for the son of Saladin, who seems to have been something of a neurotic, suffering from indigestion, constipation, and depression. The rules laid down by Maimonides have become part of the popular medical tradition. In view of the orginality claimed by so many minor prophets of the present day for views that are almost as old as disease, it may not be amiss to give a summary of them. We should eat and drink only when hungry and thirsty, and should be particularly careful of the regular evacuation of the bowels and bladder. The inclination should as far as possible be satisfied at once. A man must not overload his stomach, and should not drink much during the meal, and only of water and wine mixed. Food should be taken always in the sitting position. Most diseases come from eating either too much or unsuitable food. Every week at least a man should take a warm bath. He should not bathe when hungry nor after eating till the food is digested, and should bathe the whole body in warm but not too hot water, and the head in hot water. Afterwards the body should be washed in lukewarm water, and finally cold water should be used. Bleeding should not be frequent; it is only meant for serious illness. After the age of 50 there should be no bleeding. Whoever observes these rules of life faithfully will live long without disease, and in the fullness of his years he will die a natural death. Only the healthy should keep these rules. Whoever is ill or a sufferer from any injury or has lost his health through bad habits, for him there are special rules for each disease only to be found in the medical books. Every change in a life habit is the beginning of an ailment. Maimonides rejected astrology, and was never afraid to say he did not know anything."

In this last fact Maimonides perhaps showed his greatness more than any other thing that he ever said or did.

THE DANGERS OF THE COLD SEA BATH IN ARTERIOSCLEROSIS.

THE great good accomplished by hydrotherapy in many divers conditions is so well recognized at the present time that it does not require comment.

The pleasure, luxury and stimulating effect of the cold ocean bath is acknowledged by all. That it may be attended by serious danger and death in cases of unrecognized arteriosclerosis has been proved by more than one occurrence at our sea-shore resorts. Every year thousands of visitors come from the Middle and Southern

states to our Northern New England watering places, especially to Maine. Among them are many elderly or middle-aged people entirely unware oftentimes of arterial trouble.

It is the custom of these people often to immediately bathe in the salt water, often taking a run up and down the sands with the hot sun streaming on their heads, as a preliminary, then after the bath a walk up to the bath-house over the beach and frequently a cold shower over the head and body to get rid of the salt, then to a warm and stuffy bath-house. The influence of the cold plunge, often 55 or 56° F., after the exercise, tends to increase the blood-pressure probably to a considerable extent.

When we think of all these conditions and the number of elderly people who indulge in this pleasure, who must have more or less arteriosclerosis, it is a wonder that serious and fatal accidents do not occur more often than they do, but the fact that they do occur at our summer resorts shows that the indiscriminate use of the cold ocean bath in elderly people, without a previous medical examination certainly in some cases is disastrous.

IODINE MEDICATION OF THE BLADDER.

In the issue of the JOURNAL for January 2 (Vol. clxviii, p. 18) was reported the use of iodine vapor in cystitis, as recommended by Farnarier. Our attention has been called in this connection to an article in the *New York Medical Journal* for July 27, 1912, by Dr. Frank T. Woodbury, in which he reports a case of cystitis treated by irrigation with a mixture of one drachm of tincture of iodine (U. S. P. 7%) in a quart of salt solution. The author considers this method of iodine medication of the bladder simpler than that with iodine, and equally efficacious.

MEDICAL NOTES.

SCHWABACHER PRIZE IN MEDICINE.—Report from Berlin states that the heirs of the late Adolf Schwabacher, a German banker, have established a fund of 100,000 marks, from the income of which a quinquennial prize in medicine is to be awarded.

APPOINTMENT OF DR. STEPHENS.—Report from Liverpool states that Dr. J. W. W. Stephens has been appointed to the Sir Alfred Jones professorship of tropical medicine at Liverpool University, to succeed Sir Ronald Ross, who resigned recently to become physician for tropical diseases at King's College Hospital, London, as noted in the issue of the JOURNAL for Feb. 6.

SUBJECTS OF THE CARTWRIGHT LECTURES.—Professor Ludwig Aschoff's lectures, the Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons, will be given at the Academy of Medicine (New York) on March 12 and 15. The subject of the first lecture will be "Thrombosis," and of the second, "Contracted Kidney."

A CENTENARIAN.—Mrs. Julia A. Hill, a negress, who died on Feb. 16, at Jersey City, N. J., is said to have been born a slave in January, 1812.

UNIVERSITY OF GEORGIA MEDICAL SCHOOL.—On Jan. 29 the new building of the medical department of the University of Georgia was dedicated with appropriate ceremony. On this occasion the honorary degree of LL.D. was conferred on Dr. J. A. Witherspoon, president-elect of the American Medical Association, and on Dr. William M. Polk, dean of Cornell University Medical College.

MENINGITIS IN TEXAS.—Report from Austin, Tex., on Feb. 15, states that three cases of cerebro-spinal meningitis, with two deaths, have recently occurred among members of the State Legislature, which in consequence has adjourned its sessions for a fortnight.

DINNER TO DR. MUMFORD.—On Wednesday evening, Feb. 12, a dinner was given at the Rochester Club, Rochester, N. Y., in honor of Dr. J. G. Mumford, of Boston, who is at present in charge of the Clifton Springs Sanatorium near Rochester.

BOSTON AND NEW ENGLAND.

IMPROVED CONDITION OF SCHOOL-CHILDREN.—In a recent report by Dr. William J. Gallivan, chief of the bureau of child hygiene of the Boston health department, it is stated that since the beginning of the current school year 30,331

public school pupils have been medically examined.

"Of this number, 17,233 were discovered to be children who were found with defects during the first examination in 1912, before the end of the school term. On the second examination 9,245 cases, or 30.47%, of all defects discovered during the first examination, had been remedied by the parents on their attention being called to the defects.

"Of the 27,773 defects found in the examinations made in 1911-1912, those remedied in 1912-1913 numbered 11,470."

A CASE OF LEPROSY IN BOSTON.—A case of anesthetic leprosy was discovered last week in Boston, in the person of a Portuguese longshoreman, recently emigrated to this country. The patient has been placed in quarantine pending his deportation or removal to the Penikese Island leper colony.

REPORT OF ST. MONICA'S HOME.—The recently published twenty-fifth annual report of St. Monica's Home, Roxbury, shows that during the past year 58 patients were treated in this institution, which has now paid off its mortgage, but is urgently in need of $8,000 for a new building.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—On Wednesday of this week, Feb. 26, was held in Boston the twenty-seventh annual meeting of the Boston Instructive District Nursing Association. The report, showing the growth of its work during the past year, was presented by the director, Miss Mary Beard. The graduate courses in nursing, offered by the Association, were described by Miss Bessie S. LeLacheur, chief of the education department. An address was delivered by Dr. Milton J. Rosenau, professor of preventive medicine and hygiene at the Harvard Medical School.

GIFT TO MAINE STATE SANATORIUM.—Report from Portland, Me., on Feb. 17 announces a gift of $75,000 by Mr. David D. Stewart, of St. Albans, to the Maine State Sanatorium Association. The money will be kept intact and known as the Levi M. Stewart fund, the income only to be used for current expenses.

NEW SANATORIUM IN MAINE.—Report from Augusta, Me., states that on Feb. 18 a measure was introduced into the Senate asking an appropriation of $100,000 for the establishment of a new sanatorium for tuberculates.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 15, 1913, is 252, against 258 the corresponding week last year, showing a decrease of 6 deaths, and making the death-rate for the week 17.87. Of this number 145 were males and 107 were females; 245 were white and 7 colored; 148 were born in the United States, 101 in foreign countries, and 3 unknown; 46 were of American parentage, 175 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 51 cases and 1 death, scarlatina, 52 cases and 4 deaths; typhoid fever, 7 cases and 1 death; measles, 213 cases and 2 deaths; tuberculosis, 54 cases and 16 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 40, whooping cough 7, heart disease 36, bronchitis 5. There were 8 deaths from violent causes. The number of children who died under one year was 51; the number under five years, 76. The number of persons who died over sixty years of age was 68. The deaths in hospitals and public institutions were 107.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 8, 1913: Diphtheria, 52; scarlatina, 50; typhoid fever, 12; measles, 243; smallpox, 0; tuberculosis, 65.

The death-rate of the reported deaths for the week was 17.09.

Non-residents are included in the total cases.

NEW YORK.

STUDY OF CRIMINALS AND DEFECTIVES.—At a meeting of the Society of Medical Jurisprudence held Feb. 10 a committee, of which Dr. A. E. Gallant was chairman, appointed at the preceding meeting for the purpose, presented a report on the U. S. Senate bill (known as the McDonald bill) to establish a Government bureau for the study of the criminal, pauper and defective classes. The committee in its report offered resolutions, which were unanimously adopted, to the effect that the Society does not recommend the passage of this bill, or any similar one, but recommend to the Secretary of the Treasury to authorize the Public Health Service to devise a plan whereby the work of reliable investigators in private or public institutions, of whatever character, throughout the United States

and other countries may be carried on in connection with the Public Health Service, and by it compiled, coördinated and codified, in the hope that all the facts may be established upon a scientific basis, to the ultimate benefit of mankind. The reasons assigned for this action, as set forth in the preamble to the resolutions are: (1) the belief that the proper study of the criminal, pauper and defective classes is in the line of scientific advancement, which may lead eventually to much of benefit; (2) much time, thought and effort have already been expended by private, professional and official investigators along independent lines, which to be of any practical use should be thoroughly weighed and sifted; (3) the Congress of the United States, by an Act approved Aug. 14, 1912, has decreed that the Public Health Service may study and investigate the diseases of man and conditions influencing the propagation and spread thereof.

Recent Bequests—By the will of the late Dr. James P. Tuttle $1,000 is left to the New York Academy of Medicine to establish a fund for the purchase of works and literature on diseases of the alimentary tract.

By the will of the late Louis Bossert of Brooklyn, N. Y., $5,000 each is left to the German and St. Catharine's Hospitals, Brooklyn.

Occupational Diseases.—Before the woman's department of the metropolitan section of the National Civic Federation, on Feb. 6, the evils of occupational diseases in dangerous and unhealthful lines of industry and manufacture, and of mercury, lead and arsenic poisoning in particular, were described by Prof. W. F. Willoughby of Princeton and Dr. John Andrews, respectively president and secretary of the American Association for Labor Legislation, and by Dr. E. E. Pratt, an expert on labor conditions. At least 13,000,000 cases of illness among workers and a money loss of $750,000,000 annually, it was estimated, could be ascribed to occupational diseases in the United States.

Milk Conference.—Ten States, as well as the Federal Government, were represented in a conference held on Feb. 5 and 6, at the Academy of Medicine, under the auspices of the New York Milk Committee, and the recommendations for securing increased purity of the milk supply adopted are to be incorporated in legislative bills.

Insanity Commission Report.—The State Hospital Commission reports that 5,759 new cases of insanity requiring treatment developed in New York State during the past year. Although the Commission succeeded in having deported to other countries or removed to other states 1,753 alien and non-resident patients, and 3,242 patients were discharged from the State Hospitals, there was in 1912 a net increase of 573 patients in the hospitals. The public and private institutions for the insane in the State now contain 16,271 male and 17,702 female inmates. The report states that the over-crowding of the State Hospitals continues, the shortage of accommodations at the close of the year being 4,800 beds. In the case of insane aliens, it is held by the Commission that the Federal Government should reimburse New York for its outlay in their care, since an unwarrantably large proportion of aliens is represented in the admissions to the hospitals.

Unwashed Milk Bottles.—On Feb. 7 the Appellate Division of the New York Supreme Court upheld the constitutionality of the statute making the possession of unwashed milk bottles a punishable offense. A milk-wagon driver had been convicted of this, and his employer backed him in his appeal, contending that the statute was unreasonable and drastic. The court dismissed this and other pleas in his behalf, upholding the statute in these words: "The danger to be apprehended from the use of unclean receptacles for milk intended for human food is so well known that drastic measures to prevent the possibility of such use are reasonable and justifiable."

Feeble-Minded School-Children.—In a report to the committee on school inquiry of the Board of Estimate and Apportionment, just made public, the statement is made that 15,000, or 2%, of the pupils in the public schools of New York are feeble-minded, by Dr. H. H. Goddard, director of the department of psychological research of the New Jersey State Training School for Feeble-Minded Boys and Girls, who is one of the eleven educational experts employed under Prof. P. H. Hanus of Harvard to investigate the public school system. After detailing some of the prevalent conditions, Dr. Goddard makes various recommendations for handling the problem of the feeble-minded.

HARVEY LECTURE.—The eighth lecture in the current series before the Harvey Society will be given on Saturday evening of next week, March 8, at the New York Academy of Medicine, by Edward G. Conklin, of Princeton University, on "The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence."

DEATH NOT DUE TO STOVAIN.—In the issue of the JOURNAL for Jan. 9 (Vol. clxvii, No. 2, p. 66) we published a brief summary of the coroner's findings in the case of a patient who died last November at the New York Polyclinic Hospital after a lumbar subarachnoid injection of stovain, preparatory to the performance of an operation for hernia. The following fuller statement of the history of this case, recently published as a supplement to the article on "Spinal Analgesia," by Dr. William Seaman Bainbridge in the issue of the *Journal of the American Medical Association* for Nov. 23, 1912 (Vol. lix, p. 1855), should be of interest and value to the profession:—

"*History.*—P. H., Irish, male, age given as 50 years, probably 60 or more; chronic alcoholic. Came to my clinic at the New York Polyclinic Medical School and Hospital, Oct. 18, 1912, seeking relief for a condition which proved, upon examination, to be right inguinal hernia, at times irreducible, and causing great suffering. The man gave a history of having felt a sharp, tearing pain in the right groin, while operating a taxicab, about three months previous to coming to the clinic. Since that time he had been to several dispensaries in a vain search for relief. He had used a truss without success. Failing to obtain relief by other measures, he wished to be operated upon at once.

"From the general physical examination the patient was found to be in a very bad condition, as the result of the prolonged excessive use of alcoholic stimulants. The following conditions were present: General atheroma of the arteries; renal insufficiency, due to chronic Bright's disease; marked enlargement of the liver; myocarditis, with systolic murmur at the base; emphysema; râles over the bases of both lungs. A history of chronic gastritis was also elicited.

"The patient's general condition was such that immediate operation was not deemed advisable. He was told, accordingly, to abstain from the use of intoxicants, and to refrain from lifting or straining; he was put upon a diet, tonics, etc., and was kept under observation for about three weeks. Despite the fact that only slight improvement followed this régime, he insisted upon operation. He was then admitted to the hospital, on Nov. 14, and prepared for operation the next day.

"Because of the man's general condition, inhalation anesthesia was considered contraindicated. He was prepared, accordingly, for operation under spinal analgesia. Before the members of the Congress of Surgeons present, I injected into the cauda equina twenty-six minims of a one per cent. solution of stovain. The patient, who presented no symptoms differing from those of the average subject during the spinal injection, was then sent to another room to be operated upon by Dr. E. M. Foote and Dr. Claude A. Frink, of my staff, while I concluded my lecture before the Congress. The man's mind was perfectly clear, his pulse was good, there was no nausea, no cyanosis, no respiratory embarrassment—in fact, *none of the symptoms of stovain poisoning.* He suddenly turned pale, said, 'I am dying,' and instantly died.

"The case was made a coroner's case, and an autopsy was performed the next day, with the following findings:—

"Marked edema of the brain, so-called 'wet brain'; myocarditis; atheroma of aorta; aortic insufficiency; emphysema of lungs; chronic interstitial splenitis; chronic gastritis; chronic enteritis; chronic interstitial nephritis. Spinal cord showed no gross lesion.

"The coroner's inquest was held on Dec. 1, 1912. The jury, after listening to the testimony of the above facts and a number of experts as to the indications of death by stovain poisoning, did not find that the man died of stovain poisoning, but that death was caused 'by pathological conditions' as above described, and all concerned were exonerated from blame."

ADDRESS BY DR. ALSBERG.—In an address before the Association of Manufacturers of Medical Products on Feb. 12. Dr. Carl L. Alsberg, recently appointed chief of the bureau of chemistry of the United States Department of Agriculture, is reported to have spoken in part as follows with reference to the enforcement of the pure food laws:

"The eyes of the people have centred upon the department's struggle for pure foods. The work of the department has, I think you will admit, been successful in improving the quality of our foods and preventing grave forms of fraud and adulteration. We realize fully that much remains to be done, but public confidence has been won and precedents have been created. No backward step will be taken. There will be no letup in the enforcement of the pure food and drugs act.

"While the efforts of the Department of Agriculture, in so far as the control of the food products over which it has jurisdiction is concerned, have been attended with considerable success, this has been true to a less degree with drugs and medicines. The fault has been in part with unforeseen loop-holes in the law. Gloomy as the outlook seems, there is yet a ray

of hope. It is the attitude of a small but powerful portion of the press itself, which has voluntarily scoured its advertising columns till they contain only clean and honest matter.

"Even if we succeed in protecting the people from quack medicines, a great task remains. This is to protect them from habit-forming drugs, such as opium and cocaine. We all are agreed that something must be done to control their sale and distribution. Virtually all our supply of these drugs is imported.

"It is, therefore, feasible if the State and Federal Governments coöperate to keep an accurate record of the fate of all of each consignment imported through the wholesaler and jobber down to pharmacist, physician, dentist and veterinarian. I wish to have a clear understanding with you. I hope that now we can pledge each other to work together for the common good."

Current Literature.

Medical Record.

February 8, 1913.

1. Honan, W. F., and Hassler, J. W. *General Anæsthesia by the Intravenous Route.*
2. Lynch, J. M. *A Preliminary Report of Operations Under Extradural Anæsthesia.*
3. Hollingsworth, H. L. *Experimental Psychology and Medicine.*
4. Beer, E. *Treatment of Benign Papillomata of the Urinary Bladder with the Oudin High-Frequency Current Introduced Through a Catheterizing Cystoscope.*
5. Reid, E. C. *Literary Genius and Manic-Depressive Insanity.*
6. Hille, H. *The New Chemistry and the New Materia Medica.*
7. Field, C. E. *The Neglect of Oral Treatment in Infectious Diseases.*

New York Medical Journal.

February 8, 1913.

1. *Chapin, H. D. *The Double Function of Fats and Carbohydrates in Nutrition and Their Different Nutritive Properties.*
2. Lever, J. W. *The Relation of Scoliosis to School Seating.*
3. McMurtrie, D. C. *Prostitution in Japan.*
4. Snow, W. B. *Physical Therapeutics from the Modern Point of View.*
5. DeKraft, F. *High Frequency Currents in Medicine.*
6. Manges, M. *The Mouth from a Diagnostic Standpoint.*
7. Bray, A. *Ocular Headache.*
8. Edwards, J. F. *Medical Inspection of Schools.*
9. Brady, W. *Chronic Ulcers of the Leg.*
10. Jacob, M. M. *Gastric Symptoms in Incipient Tuberculosis.*

1. Chapin points out that fats and carbohydrates serve two distinct purposes in nutrition and the two are equally important. They not only supply heat and energy but they also supply water to the cells. Fats are more effective producers of metabolic water than carbohydrates. In milk, the natural food of rapidly growing young animals which require much metabolic water to promote cell nutrition fat supplies the greater part of this water. The amount of heat excreted is a measure of the food that is being burned, but does not show how much is needed for growth. The number of calories a food will yield is not an indication of its nutritive value. Over-emphasis has been placed upon the caloric values of foods, particularly for infants. Digestive suitability and capacity to produce true growth and proper development are the essentials. [L. D. C.]

The Journal of the American Medical Association.

February 1, 1913.

1. Nichols, J. B. *Medical Sectarianism.*
2. Symmers, D. *A Recurrent Neuroblastoma of the Scapular Region.*
3. Gaskill, H. K. *Melanotic Sarcomas Resulting from the Irritation of Pigmented Nevi.*
4. *Russell, F. F. *Antityphoid Vaccination in Children.*
5. Moore, A. R. *Edema and Nephritis; Further Experiments Proving the Invalidity of the Colloid-Chemical Theory.*
6. Fischer, M. H. *The Colloid-Chemical Theory of Water Absorption by Protoplasm. A Third Response to Some Criticisms.*
7. *Aaron, C. D. *A Sign Indicative of Chronic Appendicitis.*
8. Baughman, G. *Protection and Repair of the Perineum.*
9. Gordon, A. *Early Paresis. Importance of Its Recognition; Differential Diagnosis; Medico-legal Considerations.*
10. Zenner, P. *Sex Instruction in School.*
11. Brooks, H. *Involvement of the Ovary in Epidemic Parotitis, with a Report of Two Cases.*
12. Bernheim, B. M. *Arteriovenous Anastomosis. Successful Reversal of the Circulation in All Four Extremities of the Same Individual.*
13. Flexner, S., and Noguchi, H. *Experiments on the Cultivation of the Virus of Poliomyelitis. Fifteenth Note.*
14. Bockrt, F. *The Serum Treatment of Tetanus after Symptoms Have Developed.*
15. Buchbaum, M. *A Rapid Method for Celloidin Sections.*

4. Russell reports statistics based on anti-typhoid vaccinations of 359 children between the ages of two and sixteen years. The dosage is based on body weight, rather than on the age of the child. The child is given that proportion of the adult dose which its weight bears to the average adult weight, namely, 150 pounds. Inoculations should be given at about 4 in the afternoon, so that the reaction, if any, will come at bedtime. No harmful effects have been reported, and no cases have contracted typhoid fever, although some of the vaccinations were over three years ago. Re-vaccination in children should be undertaken earlier and oftener than in adults, as children are immunised on the basis of body weight, and consequently should be given a second course when the body weight shows material increase. Re-vaccination should be used about once in three years until further experience shows that the interval may be lengthened.

7. Aaron has found that continuous firm pressure over the appendix in cases of chronic appendicitis, induces referred pain in the epigastrium, left hypochondrium, umbilical, left inguinal, or precordial regions; and states that this may often be a valuable sign in rather obscure cases. [E. H. R.]

February 8, 1913.

1. *Jordan, E. O. *School Diseases.*
2. *Herling, R. *Methods of Water Purification for Large Cities.*
3. *Cullen, R. M. *Epididymotomy. A Plea for a Rational Treatment of Epididymitis.*
4. Halsted, W. S. *Developments in the Skin-Grafting Operation for Cancer of the Breast.*

5. *BUERGER, L. *Ulcer of the Bladder.*
6. *CHASE R. F. *Recent Observations on the Influence of the Position of the Stomach on Certain Aspects of Gastroptosis.*
7. WHITING, A. D. *Conservatism in Surgery.*
8. REINHARDT, G. F. *Public Health Education.*
9. *TROWBRIDGE, E. H. *Salvarsan in General Paresis.*
10. BISHOP, E. S. *Narcotic Addiction—A Systemic Disease Condition.*
11. PUSEY, W. A. *Sulphuric Acid Caustic Pastes.*
12. COOLEY, T. B., AND VAUGHAN, J. W. *A Simple Method of Blood-Transfusion.*
13. NEILSON, C. H., AND HYLAND, R. F. *The Effect of Strong Purging on Blood-Pressure and the Heart.*
14. HARRIS, C. M. *The Importance of Preserving the Integrity of Contiguous Structures When Operating on the Tonsils.*
15. SCOTT, J. R. *A Critical Study of the Albumen Reaction in the Sputum of Tuberculous Patients.*
16. ROCKEY, A. E. *Death from Spinal Anesthesia.*

1. Jordan believes that we are at present unable to prove that there is such a condition as increase of certain infectious diseases because of close contact in the schools, but believes that each disease should have its own special prophylaxis in each case.

2. Herling's article on the purification of water supplies of large cities states his belief in the comforting assurance that our water supplies are well and reasonably safeguarded.

3. Culler's reasons for strongly advocating epididymotomy are that the operation gives sudden and permanent relief from pain, fall in temperature within forty-eight hours, rapid reduction in the size of the inflammatory mass, early healing of the wound without suppuration and early convalescence without relapse.

5. Buerger believes that solitary ulcer of the bladder is more common than is generally supposed, and that it is easily curable by fulguration.

6. Chase, in a well-stated article, shows that gastroptosis is not so common as is generally believed; that the position of the stomach is actually of little account, provided it is doing its work satisfactorily. The condition cannot be said to exist unless the greater curvature is one or more inches below the umbilicus.

9. Trowbridge does not believe that we have in salvarsan a drug which can give any hope of cure in paresis. [E. H. R.]

THE JOURNAL OF MEDICAL RESEARCH.

JANUARY, 1913.

1. MARINE. *Benign Epithelial Tumor of the Thyroid Gland.*
2. SIMPSON. *Growth Centers of the Benign Blastomata with a Special Reference to Thyroid and Prostatic Adenomata.*
3. *TORREY AND RAKE. *Studies in Canine Distemper.*
4. BROOKS. *A Study of an Unusual Type of Arteriocapillary Fibroma Clinically Resembling Myasthenia Gravis.*
5. SWEEK AND FLEISHER. *Inhibition of Hemolysis by the Serum of Cancerous Individuals.*

3. The etiological factor of canine distemper is proved to be the bacillus bronchisepticus. This was isolated from the respiratory passages, chiefly during the incubation period of the disease, in one hundred per cent. of the cases observed, and often in pure culture. This frequency falls somewhat during the progress of the disease, although the organism was isolated in at least 75% of all cases as late as the third week. After death the figures were reversed, so that it was found that the organisms were isolated in only as many instances as they failed to appear antemortem. This fact is doubtless due to the vast overgrowth of secondary infecting organisms. The bacillus bronchisepticus is found in the nose, throat, trachea, bronchi, bronchopneumonic areas of the lung, liver, and spleen; and to a less extent in the other organs. The authors give a minute account of the cultural characteristics and biologic character of the bacillus. The filtrate was found inert; but dried and powdered organisms injected into the nasal, buccal, and aural cavities were potent, producing the typical disease. The disease was shown to be highly infectious, even during the incubation period; transmission being possible, even at that time, from attendants and unsterilized cages. Finally, animals secure from this disease, naturally acquired or produced by inoculation, an immunity protecting them against further infection. This immunization can be produced artificially by inoculation, so that further infection is impossible. [L. H. S.]

THE LANCET.

JANUARY 25, 1913.

1. *GOULD, A. P. *The Purvis Lecture on the Treatment of Inoperable Cancer.*
2. *MCCARRISON, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lecture II.*
3. MILLIGAN, W. *The Treatment of Meningitis of Otitic Origin.*
4. HELLIER, J. B., AND STEWART, M. J *On a Case of Adenomyoma Uteri.*
5. BARLING, H. G. *Hypertrophic Stenosis of the Pylorus in Adults.*
6. KENRICK, W. H. *Malaria in India and the Birth- and Death-Rate.*
7. THIELE, F. H., AND EMBLETON, E. *A Preliminary Communication on the Pathogenicity and Virulence of Bacteria.*
8. VERDON, H. W. *The Jugular Pulse.*
9. STOREY, L. *A Case of Hair Cast of the Stomach; Gastrotomy; Recovery.*
10. ALEXANDER, W. *Necessity of a Better Classification of Epileptics.*

1. Gould emphasizes the importance of mental and physical rest, strict cleanliness, abstinence from alcohol and a simple diet in inoperable cancer. Among palliative operative procedures he speaks of gastrostomy, colostomy, cystostomy, gastro-enterostomy, neurectomy and paracentesis. He goes into radium and x-ray treatment in some detail and cites some cases in which there was great symptomatic relief from such measures.

2. In the second Milroy Lecture upon goitre, McCarrison takes up the influence of soil and its geological structure in relation to this disease, concluding that goitre can and does prevail upon almost any kind of soil. He then considers the chemical substances in water and their relationship to goitre, the nature of the toxic agent of goitre, which he believes to be a living organic substance, and not any organic salt or mineral. He discusses the goitre developing in artificially bred trout, the experimental production of goitre in man in the following conclusions: Thyroid enlargement can be experimentally produced in man within a few weeks by the administration of the suspended matter taken from goitre producing water; this cannot be done when the water is boiled. Water passed through a Berkefeld filter does not appear capable of producing goitre. He describes Bircher's experiments along this line. He goes on to describe how soil seems to be the vehicle of infection, which explains why the disease is common among the poorer classes and those dwelling in agricultural districts, [J. B. H.]

FEBRUARY 1, 1913.

1. *COLLIE, J. *A Lecture on Malingering in Accident and Disease.*

2. *KILROY, L. *The Treatment of Syphilis with Salvarsan. First 1000 Cases Treated at the Royal Naval Hospital at Plymouth.*
3. *TUBBY, A. H., AND HICKS, J. A. B. *A Case of Suppurative Post-Typhoid Osteitis 13 Years After an Attack of Enteric Fever.*
4. KEITH, A. *Progeria and Ateleiosis.*
5. GRÜMBAUM, H. G., AND GRÜMBAUM, A. S. F. *New Growth and Inefficient Immunity.*
6. WOODWARD, H. M. M., AND CLARKE, K. B. *A Case of Injection in Man by the Bacterium Prodigiosum.*
7. GIBSON, A. *A Case of Old-standing Dislocation of Hip-joint Treated by Open Operation.*
8. MENNELL, J. B. *The Treatment of Recent Injury by Mobilization and Massage.*

1. This is an interesting paper on malingering, with numerous illustrative cases with suggestions as to detection and prevention.
2. Kilroy reports on 1000 cases of syphilis treated with salvarsan; 2147 injections were given to these patients with 13 invalidings, no deaths and 26 clinical relapses.
3. "Progeria" is the name given to a rare pathological condition of premature old age. Keith describes such a case in detail. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 25, 1913.

1. **A Report of the Work Carried Out at the Radium Institute from Aug. 14, 1911, to Dec. 31, 1912.*
2. MILES, W. E. *A Lecture on the Diagnosis and Treatment of Cancer of the Rectum.*

1. This report of the Radium Institute occupies the greater part of this number of the *Journal*. It describes the apparatus, methods of application, reaction, which may be (1) simple erythema, (2) erythema followed by desquamation, (3) vesication with superficial ulceration, (4) deep ulceration. There are tables showing results in 578 cases so far treated, which consist chiefly of carcinoma, rodent ulcer, sarcomata, nevus keloid, parotid tumors, fibromata, lichenification, pruritus psoriasis, lupus, tuberculous adenitis and arthritis deformans. The cases are given in full. The results are remarkable in many ways, though hardly admitting of detailed review. While it is by no means advised that radium treatment should replace proper surgery, in operable cases it is often of assistance, and in inoperable cases of very great value in relieving distressing symptoms. The report is sane and conservative and makes no undue claims for this agent. This report and the editorial remarks on it are of the greatest interest.
[J. B. H.]

FEBRUARY 1, 1913.

1. BLAND-SUTTON, J. *An Address on the Exotic Flora of the Uterus in Relation to Fibroids and Cancer.*
2. *MCKISACK, H. L. *Remarks on Atypical Exophthalmic Goitre.*
3. *EMRYS-ROBERTS, E. *The Portals of Entry of the Tubercle Bacillus, Especially in Childhood.*
4. RAW, N. *The Varieties of Tuberculin in the Treatment of Tuberculosis.*
5. *RIGG, E. E. A. T. *On the "Controlled" Therapeutic Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis.*
6. GREGSON A. H. *Organic Acid Ratio of Urine after Tuberculin.*
7. *STONEY, A. *A Year's Experience of Dioradin in Surgical Tuberculosis.*
8. STURROCK, W. D. *Gastric Hemorrhage and Other Complications in a Case of Childbirth.*
9. WILSON, C. *A Case of Cardiac Asthma.*

2. McKisack describes the functions of the thyroid gland, the etiology and symptoms of exophthalmic goitre, discussing the early atypical cases and their recognition, and in particular urges that we drop the name exophthalmic goitre and substitute that of hypothyroidism.
3. The writer sums up the portals of entry of the tubercle bacillus, especially in childhood, as including the respiratory system, the alimentary tract, the mucous membrane of the naso-pharynx, skin and lastly the placenta. The entire community is "tuberculized." The paper offers nothing new, but discusses the statistics already collected from post-mortem and other evidence.
5. Rigg's paper as to the effect of tuberculin as judged by certain criteria is interesting, but the number of cases is too small to make it of any value.
7. Stoney has had good results with "Dioradin" in surgical tuberculosis but does not state what this substance is. [J. B. H.]

THE PRACTITIONER.

FEBRUARY, 1913.

1. BARKER, A. E. *Septic Infection of Joints.*
2. *POYNTON, F. J. *Rheumatism in Childhood.*
3. *KERRELL, C. V. *The Significance of Some Common Symptoms in Childhood with Remarks on Diagnosis.*
4. ROTH, P. B. *Bow-legs in Small Children.*
5. THURSFIELD, H. *Review of Recent Literature on Children's Diseases.*
6. *JORDAN, A. C. *Intestinal Stasis.*
7. GILLESPIE, E. *On the Treatment of Gangrenous Hernia by the Combined Anastomosis and Fistula Operation.*
8. EMERY, W. D'E. *Review of Recent Literature on Clinical Pathology.*
9. FINZI, N. S. *Review of Recent Literature on X-rays and Radium.*
10. THOMSON, H. C. *Review of Recent Literature on Nervous and Mental Diseases.*
11. COOPER, J. W. A. *The Combined Treatment of Alcohol Inebriety.*
12. CUBLE, D. *Notes and Answers to Correspondents on "Obervations on the Actions of Iodine" Published in the December, 1912, Issue of "The Practitioner."*
13. WHEELER, E. R. *Two Curious Cases of Coin in the Alimentary Canal.*

2. Poynton in a long article discusses rheumatism in childhood and his well-known researches and views on this subject. He does not find it rare under five years and had no difficulty in collecting 50 cases of his own under that age. It steadily increases up to the 12th year and then declines. He emphasizes the fact that what he calls rheumatism is not merely an arthritis but a general constitutional infection. He speaks of diseased tonsils as a most important factor; he mentions its close relationship to scarlet-fever. Under pathology he summarizes the chief changes which are found. In childhood the clinical manifestations are more varied and more numerous than in adults. The articular lesions are less severe, heart affections more frequent, and the disease accordingly more fatal. Chorea and other nervous symptoms are more frequent; sweating less frequent, anemia more profound, subcutaneous nodules are more frequent, hyperpyrexia is rare. These various subjects he discusses in detail in a most practical and interesting manner. Prognosis depends on age, the nature of the onset, the constitution, presence of complications, especially pericarditis. He goes over in detail the prognosis of the various cardiac lesions. Under treatment he recommends tonsillectomy and careful care of the throat in general, warm clothing. He believes the effect of salicylate of soda to be purely symptomatic. He urges prolonged rest. He is still in doubt as to the value of vaccines.

3. Kebbell in a practical manner discusses the significance of cough, headaches, sore throats, pyrexia, wasting, abdominal pain, laryngeal stridor and certain cerebral symptoms, such as convulsions.

6. Jordan, in a paper illustrated with many excellent plates, discusses intestinal stasis from the point of view of the radiographer. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 7, 1913.

1. *ROMBERG, E. *On Digitalis.*
2. *SCHULTZ, W. *Technic and Results of My Method of Estimating Coagulability of the Blood.*
3. GROBER. *Spontaneous Cure of Basedow's Disease.*
4. COAN, A. *Treatment of Malignant Tumors with Radio-active Substances.*
5. RUPPRECHT. *Prostitution of Young Girls in Munich.*
6. v. FRISCH, K. *The Color-sense of Bees and the Colors of Flowers.*
7. HERZOG. *Shortening of Bone-conduction with Normal Hearing.* (*To be concluded.*)
8. SCHMIDT, A. *Chronic Diphtheritic Infection of the Lungs.*
9. LANGBEIN, R. *The Diagnosis of Perforating Aneurysm of the Cerebral Arteries.*
10. CREDÉ-HÖRDER, C. *"Late Infection" of Ophthalmoblenorrhea.*
11. PAGENSTECKER, E. *Gastropexy by Means of the Ligamentum Teres.*
12. KÖLLE, W. *The Treatment of Sclerodema with Coeliacin.*
13. BEYER. *A Case of Spontaneous Rupture of the Uterus in Pregnancy.*

1. This article on digitalis is an interesting resumé of advance in knowledge of the clinical use of digitalis.

2. Schultz describes again his method of estimating the coagulability of the blood and reports the result of his tests of some current methods for hastening coagulation. No change was shown after the use of calcium salts, after injection of natrium nucleinicum (to increase the leucocytes), or after administration of citric acid in the form of fruit juice. Testing injections of gelatine in cases of pulmonary hemorrhage, he found a decided hastening of coagulation occasionally. [G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 6, 1913.

1. HEFFTER, A. *The Fundamentals of Treatment with Medicine.* (*Jubilee Article.*)
2. EWALD, C. A. *The Therapy of Intestinal Diseases During the Last Fifty Years.*
3. KÜTTNER, H. *Circumscribed Tumor Formation by Abdominal Fat Necrosis and Subcutaneous Fat Decomposition.*
4. EHRMANN, R. *Diabetic Coma.* (*To be continued.*)
5. *BLÜHDORN, K. *The Treatment of So-called Uncontrollable Bleeding in Infants.*
6. BERNHARDT, G., AND ORNSTEIN, O. *The Variability of Pathogenic Micro-organisms.*
7. HANAUER, W. *Some New Theories Concerning the Causes of Death Among Nursing Infants.*

5. The author reports two cases of *Hemorrhagica Neonatorum*, both with tarry, stools, bleeding from the cord and subcutaneous hemorrhages. These were treated with injections of the calcium salts and diphtheritic serum. Both recovered. The author feels that the use of the calcium salts is always indicated. He thinks that the serum is of importance, but only secondary. He does not consider the advantages of direct transfusion at all. [J. B. S., JR.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

DECEMBER 12, 1912.

1. *SPULER, A., AND SCHITTENHELM, A. *The Occurrence of So-called Nuclear or Cell Inclusions in Lymphatic Leukemia and the Nature of the Eosinophile Cells. Also Remarks on the Bone Marrow Puncture as a Diagnostic Aid.*
2. OCZESALSKI, K., AND STERLING, ST. *Experimental Investigations on the Effect of Bleeding and Subperitoneal Injections of Blood Upon the Number and Resistance of Red Blood Corpuscles.*
3. ISAAC, S., AND HANDRICK, E. *Relations of Anemic Conditions to Carbohydrate Metabolism.*
4. *KNOLL, W. *Relation Between the Organism and the Agent Causing Tuberculosis Dependent upon Its Morphology.*
5. GROEDEL, T., AND GROEDAL, F. *Investigation of the Heart by Cinematographic and X-ray Pictures ad the Electrocardiogram.*
6. BAUER, J., AND HELM, F. *Roentgen Ray Findings in Goitre Hearts.*
7. *ELLERN, H. *Work on the Etiology of Diabetes Insipidus.*
8. SCHÜBER, J. *Importance of Antibodies in Tuberculosis.*
9. *DAVID, O. *Therapeutic Use of Oxygen-Poor Air in Anemia.*
10. *LEECH, O. *A New Percussion Method.*
11. LOMMEL, F. *So-called Bantis' Disease and Hemolytic Jaundice.*
12. *REINHARDT, R. *Relation Between the CO_2 Excretion and Size of Breath in Lung Emphysema.*

1. In the study of a case of lymphatic leukemia, these authors conclude that the cell inclusions occur as a result of degenerative changes in the nuclei of the lymphocytes. They also reach the conclusion that eosinophiles are dependent for their origin to some extent upon blood destruction, and do not come from bone marrow. They found the bone marrow puncture of value.

4. Knoll in this paper takes up the question of the morphology of the tubercle bacillus. He describes at the end of the paper in detail his technic for staining the bacillus and feels now assured that there are granular forms of the tubercle bacillus. The bacillus stains red and the granules a blue-black by this stain. He presents a set of photographs from different parts of the body showing these bacilli.

7. This author has written a long paper upon the etiology of diabetes insipidus. He thinks that by far the most important step to decide is whether you are dealing with a polydypsia or a polyuria. A true diabetes insipidus may be of renal, cerebral, nervous or syphilitic origin. It is also probable, but not yet proven, that this condition may arise from disturbances of internal secretion, such as those from the adrenals or hypophysis.

9. In view of the fact that high altitudes affect the blood picture usually by an increase of red corpuscles, David thought that there might be some therapeutic value in having anemic patients breathe air poor in oxygen for an hour or so daily. In normal people this showed practically no change in the blood picture. In simple anemia the reds and hemoglobin showed a gradual increase, but the color index remained low. In primary anemia the color index at first fell because the reds first increased, but later the hemoglobin increased and the index rose. Although the treatment seems to influence the blood picture no therapeutic value was proved.

10. Lerch with a perimeter and hammer describes a technic for percussion by means of simply letting the hammer fall. In this way, if always raised to the same height the individual error from force of blow is avoided. With this method he claims to have been able to mark out edges of organs most minutely. He also lays emphasis on the percussion of the kidneys.

12. Reinhardt studied by the recent methods the CO_2 output in emphysematous patients. He found that they breathe out about 50% more air than a healthy person. This is accomplished by increased frequency and depth of respiration. The amount of CO_2 in this air is proportionally below the normal. The whole CO_2, however, is increased, possibly due to increased muscular activity. The vital capacity is therefore lowered. [C. F., Jr.]

WIENER KLINISCHER WOCHENSCHRIFT.

No. 4. JANUARY 23, 1913.

1. BUETINER, W. *Some Questions on the Physiology and Pathology of Digestion and Absorption in the Light of Modern Serological Knowledge.*
2. *KREN, O. *Conclusions on Our Experience with Salvarsan.*
3. BÁRÁNY, R. *A Case with Complete Restoration of Hearing After Complete Deafness of Nearly a Year, Due to the Symptom-Complex of von Bárány.*
4. GUZMANN, E. *Hereditary Family Optic Nerve Atrophy.*
5. BARDACH, R. *Phenolphthaline-Spectrum and Its Influence on the Spectroscopic Study of the Urine.*

2. The author draws the following conclusions from his experience with salvarsan:—

Salvarsan is the best anti-syphilitic, its administration changes the course of the disease. Best therapeutic results are obtained when it is administered in the first stage. It is in certain first stage cases in which the serum reaction is not yet positive that its use prevents second stage; several such cases have been under observation two years without secondary symptoms. Also in some primary cases with positive reaction will the secondary stage be aborted, but as a rule the early skin lesions, as well as the later skin and mucous lesions, must be expected.

In secondary syphilis salvarsan should be used over a longer period, and in larger doses. If its use here does not give the desired result mercury should be used with it. Results of salvarsan therapy are especially good in third stage and hereditary syphilis. Large single doses of salvarsan are dangerous.

Successful results depend on a strict observance of the contraindications. Death never followed its use in the author's cases.

Parasyphilitic nervous conditions do not contraindicate salvarsan therapy. Best results come from energetic salvarsan-mercury treatment; these results are of course not especially good.

The contraindications to the use of salvarsan are: 1. High blood-pressure, as in arterial sclerosis, aneurysm, myocardial degeneration, nephritis. 2. Severe, non-specific nervous affections, as high grade neurasthenia and serious forms of hysteria. 3. Occupational exposure to noise and explosions, as locksmiths, artillerymen, chauffeurs, machinists. 4. Inflammatory and adhesive middle and inner ear disease, non specific. 5. Disseminated lymph gland disease, as disseminated glandular tuberculosis, disseminated abdominal lymph gland disease, the danger being pneumonia or peritonitis. 6. All localizations of syphilis which follow Jackish-Herxheimer swelling, as high grade perichondritis or syphiloma of the trachea.

These conclusions are based on 600 injections in 285 cases. [F. S. K.]

Miscellany.

CHARLES DICKENS' AID TO THE SCIENCE OF PEDIATRICS.*

IT is not generally known that Charles Dickens was a benefactor to children in ways other than by his books. Charles Dickens was a great friend of West, the English pediatrist. During a number of years West had only a Dispensary, where he could study children only under difficulties, not being able to study the more serious cases of illness and not having any autopsy material. West deplored this deeply and displayed great activity, and worked with unceasing zeal to found a special hospital for children, like those which were on the continent at this time.

Dickens interested himself in this building and contributed with West in the efforts to make the public realize the necessity of this institution. Thus he and West really were responsible for the founding of the first hospital for children in England,—the Hospital for Sick Children, Great Ormond Street, founded in London, in 1855. Thus the English children's specialists are in a great measure indebted to this great author for actual help in their science.

ANTIQUITY OF VACCINATION.

IN his recent work on "Medical and Surgical Science" in the Twentieth Century Science Series, Dr. Hillier calls attention to the real antiquity of preventive inoculation against smallpox:—

"The practice of inoculation against smallpox is usually supposed to belong to the eighteenth century. The supposition is true enough, so far as Europe is concerned, but it was no more than a re-discovery of facts well known ages ago. Inoculation was practiced by the ancient Brahmins, and their method is fully described in the Vedas. They rubbed the skin of the patient until it was red, then scratched it with a sharp instrument and laid upon it a piece of cotton soaked in the variolus pus obtained from smallpox vesicles of the previous year. Such re-appearances of ancient knowledge are common enough, indeed far more common than is usually admitted. Among the major scientific theories and discoveries of today there is hardly one that can sustain a claim to originality in the face of our increasing knowledge of Oriental literature."

*Trans. La Chronique Medicale, August, 1912.

Correspondence.

ROBERT FLETCHER, 1823-1912.

Boston, February 18, 1913.

Mr. Editor: Those of our profession who have been accustomed to take advantage of the rare privileges and courtesies afforded by the Surgeon General's Library will sadly miss the scholarly and dignified gentleman who for so many years carried on his shoulders the brunt of one of the greatest and most successful bibliographic tasks ever undertaken.

Perhaps equally effective is the influence of a library on its librarian and the influence of the librarian on his surroundings—and Robert Fletcher seemed as much a part of the familiar place as did the current journals in their racks and the pictures and books in the reading room. And, so far as externals are concerned, the library—despite its extraordinary growth—and is presiding genius—despite his advancing years—imparted to the visitor the same impression of fixity and permanence. There seemed to be no outward change in Dr. Fletcher during the fifteen years following the days when the younger generation of us at the Johns Hopkins Hospital first came to know him through his weekly lectures on medical jurisprudence, which brought him over from Washington with punctual regularity. Indeed, but a short few weeks before his death he was to be found in the library, where, after recovering from a critical illness, he had again returned to his desk—in his ninetieth year, the same spare, courtly, neatly clothed, soldierly personage. Even on those who never came into contact with the man himself, his scholarly qualities and capacity for detail will forever breathe from the pages of the two great medical indices—a monument to his painstaking industry and capacity for detail.

After a five years' preparation for his profession—first in the medical school of Bristol, England, the town of his nativity, and subsequently in the Bristol Infirmary and the London Hospital—he received his M.R.C.S. in 1844, and three years later, when only twenty-four years of age, he came with his young wife to this country and settled in Cincinnati. There he entered into practice, and there he might have remained had not the Civil War come to change the course of his life, as it changed that of many others.

He was first appointed to the Ohio Volunteers; three years later he was given a Government commission and was placed in charge of one of the important hospitals of the Northern army, and at the close of the war he was breveted colonel. Continuing in the service, he was ordered to Washington in 1871, where he participated in the preparation of the Anthropometric Statistics of the Provost-Marshall's Office of the War Department, and five years later was transferred to the Surgeon General's Library, where, shortly before, Dr. John Billings had begun a catalogue of the growing collection of books gathered largely by Surgeon General Hammond and his successors for the use of the Army Medical Department, in preparation of the monumental volumes dealing with the medical and surgical history of the war.

In the first volume of the Index Catalogue, which appeared in 1880, Dr. Billings pays tribute to the unflagging industry of Robert Fletcher; and to his early example more than to any other factor is doubtless due the extraordinary accuracy of the references on the printed pages of the subsequent volumes of the Index Catalogue and Index Medicus, which makes them almost unique among books of reference.

Though for some years the brunt of the work has been carried on by his cultured and able successor, the colossal nature of the undertaking which the three men, Billings, Fletcher and Garrison, have successfully carried through, despite an often sadly insufficient office force and an unsympathetic Government purse, is shown by the prefatory table in the recently published Volume XVII of the Second Series of the Index Catalogue, which records 289,826 book titles and 1,043,253 catalogued subject titles of journal articles. Dr. Fletcher's association with the Index Medicus lasted for a period of twenty-one years, as editor-in-chief for the last nine years, or until the unfortunate hiatus in the series following the abandonment of the task in 1899 from lack of support, after which, in 1903, the publication was resumed under the auspices of the Carnegie Institute.

A man's scholarly tastes are perhaps best shown by the character of his personal collection of books; and the catalogue of Robert Fletcher's library, which is to be sold this month by the Anderson Auction Company, comprises collections on crime and criminals, prisons and punishments, anthropology, ethnology, etymology, witchcraft, early drama, ballads and songs, argot and slang, dictionaries, biographies, memoirs and art—all was grist to his mill. The volumes were evidently for use and enjoyment—not the gatherings of a bibliomaniac— and the range is wide: from Lady Mary Wortley Montague to Bill Nye; from Fanny Burney's Diary and Kenelm Digby's Memoirs, to Earle's Native Races of the Indian Archipelago; from Sir John Harrington's Nugae Antignae and Orlando Furioso to Eugene Field; from Rader's 1863 "Dictionarie" to the Relique Hernianae.

Of Robert Fletcher's several writings the earlier ones are largely on anthropological subjects, and his scholarly monograph on Prehistoric Trephining was one of the earliest and most important treatises on this interesting subject. From time to time, before the Johns Hopkins Hospital Historical Club he gave some charming sketches, among which were his "Medical Lore in the Older English Dramatists and Poets" (1895), "The Witches Pharmacopeia" (1896) and "A Tragedy of the Great Plague at Milan in 1630" (1898); and since his death an interesting paper, "On Some Diseases Bearing the Names of Saints," has appeared in the December number of the Bristol Medico-Chirurgical Journal. Thus his last written words fittingly appear in the organ of the school where he graduated and of which he was the oldest living student. The words of appreciation by his friend, Sir William Osler, concerning his services to Medicine, which were to have accompanied the article, were unexpectedly and sorrowfully turned into a memorial notice.

In 1910 the gold medal of the Royal College of Surgeons was given him, a rarely conferred distinction, which he shared with but eleven others, among whom were Parkinson, Paget and Lister; but more lasting than gold is the service which his peculiar talents fitted him to give to the medical profession of the world and of which his share in the great medical indices is the enduring expression.

HARVEY CUSHING, M.D.

THE MODERN FEMININE FIGURE IN CLASSIC TIMES.

Boston, Jan. 29, 1913.

Mr. Editor: I have heard that certain physicians, who have given much study to the problems of metabolism and dietetics, have been often consulted by women, who are anxious to attain the lath-like figure which has been recently and perhaps is still the ideal, in order that they may get rid of all superfluous flesh and such unfashionable projections as hips, busts and buttocks. In this connection the following lines from Terence, which I ran across the other day, may prove interesting. The speaker has fallen in love with a girl who is beautiful and has what he considers a good figure of the type once called feminine.

"Haud similis virgo est virginum nostrarum, quas matres student,
Demissis humeris esse, vincto pectore, ut graciles sient.

si qua est habitior paulo, pugilem esse aiunt, deducunt cibum:
Tam etsi bona est natura, reddunt curatura junceam:
Itaque ergo amantur."

Eunuchus, 313-317.

Yours truly,

PHILIP COOMBS KNAPP, M.D.

[For the benefit of those whose Latin, like my own, is oxidized an inch thick, I append Mr. John Sargeaunt's translation: "It's a girl not like the girls in our society, whose mothers try to fit 'em with falling shoulders and straight bosoms to make 'em slim. If one of 'em is the least bit plump she's called a boxer and docked of her rations. She's all right by nature, but treatment makes her like a bulrush. Ay, that's why suitors come."—P. C. K.]

[For the further benefit of our readers, we would refer them, in connection with Dr. Knapp's apt quotation from Terence, to the following similar passage from "The Ten Classes of Women," by Semonides, a Greek iambic poet, who flourished about 625 B.C.

'τὴν δ' ἐκ πιθήκου [θεὸς ἔθηκεν]· τοῦτο δὴ διακριδὸν
Ζεὺς ἀνδράσιν μέγιστον ὤπασεν κακόν.
αἴσχιστα μὲν πρόσωπα· τοιαύτη γυνὴ
ἐστὶ δ' ἄστεος πᾶσιν ἀνθρώποις γέλως·
ἐπ' αὐχένα βραχεῖα, κινεῖται μόγις,
ἄπυγος, αὐόκωλος· ἃ τάλας ἀνήρ,
ὅστις κακὸν τοιοῦτον ἀγκαλίζεται.'

The modern fashionable feminine figure was evidently not unknown twenty-five centuries ago. Particularly interesting in this description is the use of the word ἄπυγος which may be rendered euphemistically, though not with literal accuracy, "slab-sided." The same term is employed, in a fragment from Plato Commicus, in the description of a man, Kinesias:

'Εἰαγόρου παῖς ἐκ πλευρίτιδος Κινησίας,
σκελετός, ἄπυγος, καλάμινα σκέλη φορῶν,
φθόης προφήτης, ἐσχάρας κεκαυμένος
πλείστας ὑπ' Εὐρυφῶντον ἐν τῷ σώματι.'

This Kinesias was apparently a popular figure of ridicule in his time; for Athenaeus, in "The Deipnosophists," (Book xii, Chapter 76), says of him:

"Kinesias was in reality an exceedingly tall and exceedingly thin man; on whom Stratis wrote an entire play. Others, as, for instance, Aristophanes, often call him φιλύρινος, because he took a plank of linden wood (φιλύρα) and fastened it to his waist under his girdle, in order to avoid stooping." A forerunner of the corset.—EDITOR.]

HENRY JENKINS: CENTENARIAN.

Duncan Lodge, Providence, R. I.,

Feb. 2, 1913.

Mr. Editor: It may interest you to know that there hangs in my study a very old print of Henry Jenkins, the legend of which, in black letter, is as follows:

Henry Jenkins
Aged 169

Born 1501, Reign xvi of Henry VII. Obit. December 3rd, 1670 xxi of Charles II. Who lived during the Reigns of Henry VII, Henry VIII, Edward VI, Queen Mary and Elizabeth, James I, Charles I, Cromwell, and Charles II.

Events—Popery the Law of the Land; Remembered the Abbott of Fountain Abbey, Yorkshire, before the Dissolution of the Monasteries; Protestant Religion Established Twice, Persecution of Protestants over, also the Government of the Church and State overturned by Cromwell and his Associates, and Charles I beheaded January 30, A.D. 1649. .....

On the back of the picture is further the following note:

Henry Jenkins was born at Ellerton, upon Swale, near Richmond in Yorkshire; his father, a farm labourer, attended to the gardens of the neighbouring gentry. When a boy he was in the service of Lord Conyers (to whom he became butler) and remembered the battle of Flodden Field, Sept. 9, 1513, being sent to North Allerton with a cartload of arrows, but an older boy was employed to carry them to the army. In the King's Remembrances Office in the Exchequer, there is a record of a deposition being taken April, 1665, where Henry Jenkins of Ellerton-on-Swale, labourer, aged 157 years, was produced as a witness. He died in 1670 and was buried at Bolton-on-Swale, where a monument was erected by public subscription to perpetuate his memory. It consists of a base 4 ft. 4 in. square and 4 ft. 6 in. high, surmounted by a pyramid 11 ft. high. On the east side is inscribed:

This monument was
Erected by Contribution
In the year 1743 to ye memory of
Henry Jenkins
Aged 169

On a mural tablet of black marble at the west end of the chancel is inscribed the following epitaph, composed by Dr. Thomas Chapman, Master of Magdalen College, Cambridge:

Blush not marble
To rescue from oblivion
The Memory of
Henry Jenkins,
A person obscure in birth,
But of a life truly memorable,
For he was enriched
With the goods of nature
If not of fortune;
And happy in the duration, if not variety,
Of his enjoyments;
And tho' the partial world despised
And disregarded his low and humble state,
The equal eye of Providence beheld and blessed it
With a patriarch's health and length of days,
To teach mistaken man
These blessings were entailed on Temperance,
On a life of labour and mind of ease.
He lived to the amazing age of 169,
Was interred here Dec. 6 [lege 9] 1670,
And had this justice done to his memory 1743.

Yours faithfully,

G. ALDER BLUMER, M.D.

PREPARATIONS OF CROTALIN.

1829 Spruce Street.

Philadelphia, Pa., Feb. 5, 1913.

Mr. Editor: I have just been credibly informed that several druggists in this city dispense crotalin for hypodermic use at the extravagant price of ten dollars for one dozen ampules, each ampule containing 1/100 or 1/200 of a grain.

This is a prohibitive rate, especially to the poor, and, as I am the original sponsor for the hypodermic method of giving crotalin, and since it has proved itself valuable in the treatment of pulmonary diseases, epilepsy, and other intractable nervous diseases, in the hands of others, as well as in my own, I am unwilling that this rate should prevail and ham-

per its further introduction, and would say that, in my five years' experience with the injection of this agent, I have chiefly employed a solution, made according to the following formula, which will remain fresh for at least a month:

℞

Crotalini	gr. 1
Glycerini	m. 100
Aquae. Destil.	m. 400

M. Ft. Sol. Sig. for hypodermic use.
Dose: From one to seven and half minims. Children one-half to five minims. Always begin with the smaller doses.

I have occasionally used the hypodermic tablets of equal strength, but prefer the solution because it is always ready for use.

Among the many thousands of injections that I have given, I never encountered an abscess, or any other serious mishap.

In this form it may be obtained at a very reasonable cost from Druggist Clark, 1900 Pine Street, Philadelphia, or Druggist Hunsberger, 1000 Spruce Street, Philadelphia, and the dried venom is furnished by the Armstrong Snake Co., Commerce and Steves Streets, San Antonio, Texas.

Yours very truly,

THOMAS J. MAYO.

RADIUM EMANATION.

Boston, February 20, 1913.

Mr. Editor: Frederick Soddy, one of the discoverers of the emanation of radium suggested many years ago trying it in internal medicine. Yet as late as August, 1912, he makes the following remark: "The physiological effects of radium are imperfectly known and are probably potent. This as a field of investigation I personally have no desire to explore, so we must, therefore, cork the tube and so prevent the emanation from diffusing into the room." Before a form of energy can be wisely used in medicine there is but one safe course to pursue, the one I adopted with x-light and radium at the time they were discovered, namely, testing on animals. If the directions published at that time as to the effects of x-light and radium had been heeded much human suffering would have been saved. We cannot too clearly remember that the radium rays which, since 1901, have proved so useful in skin cancers are not given off from the radium, but rise from the emanation, a heavy gas of the argon group. As these children of the emanation have produced serious consequences when used externally, is it well without more experiments on animals to introduce their parent into a man, when we can in no way even retard its production of particles and rays which can produce such serious results?

The force liberated by an unweighably minute amount of the emanation, so far transcends our old notions of what was possible that we cannot be too careful. The energy accompanying the rupture of a single atom of the emanation, is a million times as great as in chemical transformations.

WILLIAM ROLLINS.

RECENT DEATHS.

DR. MINOT A. STEELE, who died of septicemia on Feb. 17 in Portsmouth, R. I., was born at Nashua, N. H., in 1867. He received the degree of M.D. from Albany Medical College in 1890, and since 1895 had practised his profession at Portsmouth. He was medical examiner for the Newport district. He is survived by his widow.

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN.—The Training School Committee announces a Course of Lectures on Applied Psychology, by Mary Lawson Neff, M.D., at the Hospital, Dimock Street, Roxbury, on Tuesdays and Fridays, at 8 p. m., from February 25 to March 21.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical Section meeting at the Boston Medical Library on Wednesday, March 5, 1913, at 8.15 p. m.

"Bacterial Infection and Metabolism: Their Relation to Internal Medicine," Dr. Arthur I. Kendall, Professor of Bacteriology in Northwestern University Medical School, Chicago.

Drs. Theobald Smith and Fritz B. Talbot will take part in the discussion.

GEO. C. SHATTUCK, *Secretary.*
205 Beacon Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-fifth meeting will be held at the Boston Medical Library, at 8.15 p. m., on Saturday, March 1, 1913.

The following papers will be read:

1. "Artificially Dried Casein. A Preliminary Investigation," Henry I. Bowditch, M.D., Boston.
2. "On the Pathogenesis of Casein Curds in the Stools of Infants," Alfred F. Hess, M.D., New York.
3. "Metabolism of a Child with Complete Absence of the Bile from the Intestines," Willard S. Parker, M.D., Boston.
4. "Amaurotic Family Idiocy," Report of two cases. Isador H. Coriat, M.D., Boston.

Light refreshments will be served after the meeting.

JAMES S. STONE, *President.*
FRITZ B. TALBOT, *Secretary.*

BOOKS AND PAMPHLETS RECEIVED.

Napoleon's Campaign in Russia, Anno 1812, by Dr A. Rose. 1913.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 15, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	17	4
Chicago	—	—	Waltham	9	1
Philadelphia	—	—	Brookline	5	—
St Louis	—	—	Chicopee	6	1
Baltimore	—	—	Gloucester	4	—
Cleveland	—	—	Medford	10	1
Buffalo	—	—	North Adams	1	—
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A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

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In the study of joint diseases clinicians soon become dissatisfied with their own personal observations made alone upon patients, and search for explanations for the difficulties encountered in treatment by turning to established data of well known scientific subjects.

Personal clinical impressions are looked over again to see if they can be correlated and made to harmonize with ideas held by chemists, physiologists, biologists, bacteriologists, pathologists and anatomists; and each review usually results in modifications being made among the inferences that have been drawn from clinical data. The latter finally become associated with a very large number of facts of very great variety as conceptions become more comprehensive and accurate in detail.

Therefore careful studies upon arthritic subjects are difficult and tedious to read, because in the present stage of advancement of medical science many intricate associations of facts and difficultly proven truths are encountered. And these must be fairly dealt with if progress is to be made, although preference for simple, easily understood ideas is to be encouraged. The predominance of complex combinations at the present time cannot be ignored.

It is well also to recognize that, as far as practical results of treatment are concerned, the existence of simple convincing proofs for ideas used in directing therapeutic measures is not absolutely essential, because results depend primarily upon the soundness and accuracy in detail of the ideas which control therapeutic measures, and not upon the ease with which such working hypotheses can be demonstrated to be correct.

One other feature that should be mentioned about the present stage of development of treatments for joint diseases, is the probability that the existing disparity will be overcome in the future between excessively large numbers of therapeutic agents now in use and the generally limited understanding of these particular troubles.

In medicine, as in other arts, when experience, skill and understanding increase, superfluous tools and agents are sure to be eliminated; and a useful comparison can be drawn between the problems of modern medicine and those of modern engineering

Engineers engaged in complicated construction work use the simplest methods available. Their problems are not solved generally by elementary arithmetic but primarily through knowledge and skill in handling very complicated, difficultly understood principles of higher mathematics, physics and mechanics. And physicians, it seems, must follow a similar example. They too must no longer insist that medical procedures be restricted alone to those simple ones which are based upon elementary knowledge that can be understood by all at a glance.

The writer has had an experience similar to the usual course of events just outlined, and has groped around among the various aspects of joint diseases until he has accumulated a large number of impressions and ideas of various sorts. These, when they are combined, give a somewhat different conception of arthritis and its causes from those generally held. And because one's point of view is a matter of greatest practical importance in directing treatments, since it determines what interpretations shall be placed upon clinical observations, what kinds of curative agents shall be used and what methods of application employed, the writer has the temerity to present this rather long series of discussions upon the diverse elements that contribute to success.

There is a large group of facts and impressions that may be discussed together advantageously concerning the relationship between visceral ptosis and arthritis, and in comparisons between mild intestinal toxæmias and gout. Accordingly, these topics will constitute the main features of the paper.

Enough observations have been made by surgeons to show undoubtedly that operations which overcome stasis, and those which side track or completely remove from function certain defective portions of the gastro-intestinal tract by anastomoses, resections and colostomies, will be followed in some instances by subsidence of aggravate arthritic lesions. Visceral ptosis is so frequently an accompaniment of such defective conditions that by some it is considered the dominant feature of them.

Equally well established also is the fact that internists lay emphasis upon, namely, that most marked degrees of visceral displacements may be present without symptoms of arthritic disease.

These facts have led to disagreements about relationships between the two, and new light is shed upon these uncertainties if clinicians will drop temporarily their usual conceptions derived from direct personal experience, and if instead they will consider some general biological aspects of the matter.

A convenient abstract biological view that may be used as a starting point, has been stated recently by W. T. Sedgwick[1]. He says, "The

body of the higher animals, as everyone knows, is not a solid mass completely enclosed by the skin, but a semi-solid bundle of tissues tunnelled by a long folded tube, the alimentary canal or food tube. This tube possesses its own special walls, expressly adapted for preventing raw food and other foreign substances from entering the real body—which lies between the food tube and the skin,—until such substances have been digested and made ready for absorption. Within this tube, food, whether raw or cooked, is chemically treated until some of its components—but only some—are admitted into the body proper, the remainder being held in the tube, moved onward and eventually cast out."

The natural place to begin, when attempts are made to understand visceral ptosis and other associated defects, is at the surface of this food tube where materials first come in contact with the body and are absorbed. Ptosis may be an accompaniment rather than the cause either of them or of arthritis.

The first points to be dealt with are factors which determine the amounts and qualities of absorptions from the alimentary canal, not primarily with anatomic peculiarities exhibited by these organs, because anatomic variations do not correspond precisely to functional ones, although they may influence normal physiologic activity. *Physiologic and anatomic data should be kept clearly separated because they are not identical.*

Among other topics that are encountered in biologic consideration of visceral ptosis and arthritis, besides quantitative and qualitative sides of absorptions already referred to, must be mentioned the influences which absorbed circulating substances have upon body tissues; the influences of variations in excretory functions upon concentrations in the blood; the factor of variable resistances in joint tissues; the presence of congenital anatomic variations; the effects of posture, and of relaxations after pregnancies upon positions of the viscera; physiologic limits from which returns are possible to normal states again; indications for medical treatment, orthopedic supports and surgical interference.

Starting with the situation as it is presented in the lumen of the gut, attention will be directed first to work of physiologists who have studied absorption by the intestinal mucosa from experiments upon animals after operating upon them. If a small loop of the gut of an animal is cut away completely from the rest of the bowel leaving the blood supply of the loop intact, by suturing its two ends to the abdominal wall a small separated section of mucosa is made accessible for experimental purposes. It is understood that the continuity of the divided intestine is restored again by anastomosis before the experimental loop is turned up to the surface.

In such an isolated Thiry-Vella loop, absorption can be studied by the introduction of various food stuffs, salt solutions, etc. "Much work has been done to ascertain whether the known physical laws of diffusion, osmosis and imbibition are sufficient to account for the absorption or whether it is necessary to refer them in part to some unknown activities of the living epithelial cells. It would seem that diffusion and osmosis occur in the intestines. Concentrated solutions of neutral salts—sodium chlorid, for instance—if introduced into a Thiry-Vella loop, cause a flow of water into the lumen in accordance with their high osmotic pressure, and, on the other hand, some of the sodium chlorid diffuses into the blood in accordance with the laws of diffusion. It seems equally clear, however, that absorption as it actually takes place is not governed simply by known physical laws. Thus, the animal's own serum, possessing presumably the same concentration and osmotic pressure as the animal's blood is absorbed completely from an isolated intestinal loop.

"The energy that effects the absorption is furnished by the wall of the intestine, presumably by the epithelial cells. It constitutes a special form of imbibition which is not understood. That this particular form of energy is connected with the living structure is shown by the fact that when the walls are injured by the action of sodium fluorid, potassium arsenate, etc., their absorptive power is diminished and absorption then follows the laws of diffusion and osmosis.2"

While almost nothing is yet known of the nature of ultimate vital activities of living protoplasm, whether of intestinal epithelium, renal epithelium or of any tissue, nor of variations of absorptive powers of the intestinal mucosa from time to time; nor very accurately of comparative efficiencies of the intestinal mucosas of different individuals, yet all observations that have been made point to the likelihood of some variations in absorption due to conditions in the intestinal epithelium.

Histological studies of the intestine in acute enteritis, typhoid fever and dysentery show congestions, desquamations, and ulcerations of the mucosa, and suggest that variations in intestinal functions observed to occur clinically very roughly correspond to the visible pathologic changes seen in these troubles.

An interesting phenomenon, showing the importance of vital activity of the intestinal lining and dependence of health upon it, is seen in the rapid spread of intestinal bacteria through the walls of the gut into other organs in moribund conditions. Although no obvious change may have taken place in the dying tissues of the alimentary tract, they cease to hold back any longer the invading micro-organisms, and the latter spread through the body just before death.

But other factors besides permeability of the intestinal epithelium influence the amount and quality of absorption; and considering for the moment that the mucosa has a fixed capacity

for taking up materials, variations may occur from varying quantities of food ingested, from variable physiologic rates of peristalsis, from existence of abnormal conditions,—ptoses, strictures, obstructing pressures due to adjacent organs, defective functioning of the liver, pancreas and other associated glands.

In healthy states, as well as in pathological conditions, if no food is ingested there can be no absorption; and according to increments in quantities and change of qualities of food taken there will be corresponding changes in absorptions up to a certain limit, namely, that of the maximum capacity possessed by the particular individual's mucosa. Beyond this limit changes in quality of the materials taken up, due to bacterial activities of intestinal micro-organisms, will become prominent features of the situation. If constant quantities of food are taken and fixed absorption powers exist, there may be physiologic variations in absorption depending upon the rate with which food products are hurried through the alimentary canal.

In pathologic conditions—dilatations, atonies, ptoses, strictures, and obstructions, there is wide range in time that foods are retained with differences depending upon the degree of obstruction and peristaltic activity, and upon the quantities of food ingested. In other instances, if there is no bile, or scanty amounts of pancreatic juice, in the intestine the character of digestion also is considerably influenced.

From all these facts the following conclusions seem justifiable, namely, that the blood stream continually receives varying quantities of normal food elements and products of intestinal bacterial activity; and secondly, that at times excessively large quantities of the latter may be present in the circulating blood as the result of the following theoretical combinations:—Excessive formations within the lumen of the gut associated with average rates of absorption by the intestinal mucosal lining; excessively rapid absorptions associated with average rates of formations in the bowel; and lastly, excessive rates of formations combined with excessive rates of absorptions.

. . . . . .

Starting anew upon the basis afforded by these conclusions, inquiry will be made next into the influence exerted by variations in excretion by the kidneys. The fate of ordinary food materials will not be followed.

Kidney functions as well as their gross appearances are known to vary within wide limits in pathologic conditions. Kidneys also show occasional congenital abnormalities and normal physiologic variations. To quote Hammarsten "the absolute quantity of urea nitrogen in the urine of adults amounts to about 10-16 grams per day. In disease the proportion of the nitrogenous substances may be markedly changed, and a decrease in the quantity of urea and an increase in the quantity of ammonia have been observed in certain diseases of the liver. In diseases of the kidneys which disturb or destroy the integrity of the epithelium of the convoluted urinary tubules, the elimination of urea is considerably diminished."[3]

In uraemia there are very pronounced toxic symptoms associated with anuria.

Other renal functions also are known at times to show as great variations as those exhibited in urea elimination, for example, in the varying volumes of water excreted. Without troubling at this point to enumerate all peculiarities described, and simply accepting many recorded observations as correct, let it be supposed that a kidney of ordinary capacity is at work excreting into the urine bacterial products from the blood which have been absorbed from the intestinal tract.

Ordinarily it has no difficulty in doing so, and the individual enjoys good health. If occasionally there are unusual intestinal bacterial activities with absorption of their products, there are occasional extra demands made upon the kidneys to excrete the extra amounts. Renal function generally responds to such demands and in consequence the urine shows daily fluctuations without clinical symptoms.

In some instances it may happen that there are pathological conditions of the alimentary tract, that fermentations and putrefactions in it constantly are rather large, and also that rates of absorption are rapid, depending upon blood pressures; desquamations, ulcerations and hyperemias of the intestinal mucosa; or upon atonies and stenoses which hinder normal peristaltic function. The kidneys are obliged to work very actively under these conditions to excrete the large quantities of materials brought to them; and if occasional periods of still greater bacterial activity occur in such persons, when already there are decidedly active ones going on, there may be thrown into the circulation too many such products for the kidneys to take care of quickly. As a result there will be a temporary backing up of these substances in the blood.

This latter condition will persist until the excretory organs, working at their maximum rate, catch up in the work which has accumulated, and after a longer or shorter time restore again normal proportions in the blood stream. During the period when undue accumulations in the blood exist, if the degree of concentration is sufficient, variable clinical symptoms will be noticed.

In other cases the equal balance between absorptions and eliminations may be maintained for a long time at a level which represents very nearly the limit of renal adaptability and function, then, owing to minor factors of wear and tear of life, defects may appear extremely gradually either in the alimentary tract or kidneys. The kidneys, having been working nearly at their maximum rate may not be able to meet the new demands made upon them; and, as a

result, the healthy vascular balance is slowly lost with almost imperceptible changes taking place in the blood occupying weeks or months in development. There may be fluctuations, with a temporary regaining of the healthy balance between the intake and output, as the human organism tries to compensate for renal difficulties through vicarious functioning of the skin. The result theoretically is the same upon concentrations in the blood whether the kidneys slowly deteriorate, or the digestive tract becomes gradually more permeable without compensatory increase of renal function.

It should be clearly understood also that concentrations in the urine are independent of concentrations in the blood. With vigorous kidneys of large capacity theoretically there may be excessive intestinal formations, rapid absorptions and rapid eliminations without undue vascular proportions yet with large amounts of bacterial products in the urine. Obviously the determining factor is the vital activity of the renal epithelium,—if it is sluggish accumulations in the blood can occur, while if it is very active none are possible. In the latter condition the urine may show nearly the same variations that exist in absorptive powers of the intestinal mucosa.

Theoretically it is entirely possible to have average or diminished intestinal formations associated with rapid absorptions and with sufficiently faulty eliminations to lead to excessive accumulations in the blood, and at the same time with scanty quantities of the products in the urine. The kidneys in these cases presumably must be weak in function from congenital peculiarities or from diseased conditions. It may be noted in passing that these same suppositions hold true with regard to proportions of urates in the blood and urine, and assist in comprehension of gouty manifestations.

To summarize the possible theoretical combinations of the various, definitely known, variable factors: there should be at times excessive formations of substances derived from bacterial activity in the bowel without excessive concentrations in the blood; excessive absorptions from the intestine without corresponding concentrations in the blood; and excessive quantities of bacterial products in the urine without undue proportions of them in circulation;—also there ought to be at times slight formations, or poor absorptions, or both, from the alimentary tract which show simultaneously scanty proportions in the urine, yet with abnormally large quantities in the circulation. Nothing in these suppositions is antagonistic theoretically to the idea of a single, comparatively harmless, bacterial product in the blood stream being the cause for many arthritic manifestations. Theoretic possibilities are seen to tally with actual clinical observations, but for direct proof of the latter the reader is asked to wait and simply to suspend judgments for the present.

From these theoretical considerations, which agree with clinical observations in so far as the latter have been made, it is justifiable to think that quantities of bacterial products in the circulation may at times show different grades of concentration over widely varying periods, as the resultant effect of the combined influences of intestinal absorption and of renal excretions; also that vascular proportions depend in every instance upon the ratio of the rates of absorptions to those of excretions, and not upon absolute functioning powers of either the alimentary tract or excretory organs independently.

DIRECT ACTION OF CIRCULATING VASCULAR CONSTITUENTS UPON BODY TISSUES.

Direct pathologic influences of the blood upon tissues may be those due to harmful kinds of irritants, or to injuriously large amounts of normal waste products always present in the circulation.

Examples of harmful kinds of circulating substances producing symptoms are seen in effects of toxins of virulent pathogenic bacteria and from metallic poisons like lead.

Illustrations of the pathologic effects of large amounts of ordinarily harmless substances are presented in pathologic accumulations of lymph in oedema, and in retentions of waste products in uraemia. Fatigue effects after muscular exercise are concerned with temporary accumulations in the circulation of ordinary metabolic products from working muscular tissues. Hydrochloric acid in gastric juice is beneficial in the strength of 0.2%, but when present in slightly larger or smaller amounts there are often digestive difficulties, and in strong concentrated solution the acid destroys the mucosa. Again, cells like red blood corpuscles swell and lose their normal appearance if blood plasma is diluted with its principal normal constituent, water; etc., etc.

The importance of healthy proportions among vascular constituents can be appreciated better if an attempt be made to name any single substance, among those normally present in the circulation and concerned either with the building up or breaking down phases of metabolism, that can be increased or diminished indefinitely without influence upon the individual.

It seems that no normal vascular constituent is absolutely devoid of pathologic influence in all possible proportions, although some vascular constituents can vary between wider limits without appreciable harm than some others.

Products of intestinal bacterial activity generally are considered to be extremely harmless because of the constant presence of great numbers of bacteria in the bowel, and on account of the continous appearance of substances in the urine derived from them. All throughout life these bacterial products are being absorbed, passed through the circulation, and excreted, so that all body tissues are more or less constantly subjected to their influence.

They must be thought of, in part at least, as waste products which are of no further use to the organisms evolving them or to their host; and that consequently they are continually being eliminated in the urine together with waste materials produced in tissue cell metabolism.

Notwithstanding the fact that they are usually considered harmless, the writer believes when they circulate in the blood in too great concentrations that they are capable of producing pathologic changes similarly as retention of katabolic products from tissue metabolism may cause pathologic symptoms and changes.

The writer would place the responsibility primarily for certain slow changes taking place in connective tissues about joints; for some relaxations resulting in postural defects; and for certain dilatations of stomachs and saggings of the abdominal viscera, upon the presence of excessive quantities in the blood of comparatively harmless katabolic products from the metabolism of intestinal bacteria.

In conditions thought to show the direct influence of excessive quantities of so-called harmless bacterial products in the blood, clinically there have been observed associated with them at times secondary anemias; sallow appearances of the skin; unusual perspirations; skin eruptions; slowing of the pulse rate and lowering of the blood pressure; loss of muscle tone; enlargements of lymph nodes, spleen, liver and joints, etc. The picture is a variable one, clinically, as it should be theoretically, and differs according to degrees of active irritation by the circulating bodies and to relative strengths of different tissue resistances.

At this point mention of the usual reactions of joint tissues to circulating vascular constitutents must be made. Joints are not always affected, and they are influenced to marked degrees in some instances from irritants of supposedly intestinal origin when the urine shows very little evidence of intestinal fermentation and putrefaction.

Like all tissues articulations present their own congenital and acquired peculiarities which are shown in their metabolic activities and vital resistances. Such peculiarities and aberrations are seen in the hemorrhagic joints of persons having hemophilia; in joint lesions developing after mechanical injuries,—these happenings determining at times involvement of injured joints in subsequent infectious processes; in the healthy resistances to mechanical injuries shown by some individuals who resist severe traumata which set up synovitis in others; in the setting up of inflammations by slight, usually negligible injuries in joints which have already been weakened from other causes; and finally in the congenitally low resistances of some joints as indicated by their repeated involvements in acute rheumatic fever, and in other diseases of infectious nature.

There should stand out prominently in conception of joints, not only their structure, but their exhibition physiologically of occasional wide variations.

And the incidental fact that they are designed to be unusually resistant to mechanical frictions and pressures of ordinary body movements, should not obscure their equally important peculiarity of variability in other ways, both anatomically and physiologically, visibly and invisibly, as all living tissues do occasionally to important degrees.

An individual with low joint resistances presumably may go through life without joint troubles, provided he is robust in other respects, and does not contract diseases that are capable sometimes of causing joint lesions. The chances for escape from arthritic manifestations are very greatly improved, the writer assumes, if such a susceptible person always maintains well-regulated digestive and renal functions, and never has excessive accumulations in the blood of katabolic products from intestinal bacteria.

Clinical observations prove that joints are resistant to well known bacterial infections like tubercular, gonococcic and pyogenic ones; and the proportion of susceptible persons in these instances (approximately 2-20%) makes it extremely probable that the large majority of persons with abnormally large proportions of bacterial products in circulation from the alimentary tract similarly will show no joint symptoms. This supposition is borne out by the much greater frequence of intestinal auto-intoxications without joint involvements than severe grades of arthritis that can be ascribed to this origin.

. . . . . .

Having briefly mentioned a few features of intestinal absorptions; renal excretions; direct influences of vascular constituents due to different kinds and to variable proportions of circulating substances; and the usual reactions and peculiarities of joint tissues there remain to be noticed a number of additional points.

These include the effects of circulating bacterial products from the gastro-intestinal tract upon the stomach and intestines themselves; the influence of vascular constituents upon the nervous system, spleen, muscles and other body tissues; the part played by the liver in the train of complex physiological happenings which follow absorptions from the digestive tract; the exact chemical nature and precise origin of bacterial products; further explanations and discussions of renal conditions; and the intestinal tract as an excretory organ.

Topics thus far have been taken up in their biological sequence which is determined by normal anatomical and physiological considerations; and next there should be mentioned logically the direct reactions of vascular constituents upon the digestive tract as has been done already with the articulations.

Owing to the many complexities and obscurities in reactions between the blood and blood-forming tissues, nervous tissues, liver and other

organs, these will be omitted from discussion temporarily for the sake of clearness, although they too should be included as well as the gastro-intestinal tract and the joints from the standpoint of physiological completeness.

Their existence, however, will be taken into account during the consideration of the reactions between blood, stomach and intestines. Visceral ptosis, it seems, may be the cause or result of defects in the visceral organs, and so this *anatomic* defect will be taken as a starting point to introduce the *physiologic* events taking place between the blood and the gastro-intestinal tract.

RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS.

Visceral ptosis may be congenital, or it may follow mechanical stretchings of abdominal walls after repeated pregnancies. At times it seems to be caused by postural defects due to bendings of the vertebral column which allow relaxations of the abdominal muscles and squeezing downward of the organs by the ribs. Pressures from clothing, removal of tumors and organs, and intrathoracic conditions may cause it. Again, it may follow definite pathologic conditions, strictures, strangulations and the like, or develop simply as a result of defective digestive function without gross anatomic abnormalities.

The last mentioned variety of ptosis will be taken up first. Again the idea will be considered of excessive amounts of intestinal bacterial products acting upon various body tissues while they circulate in the blood stream, producing among their effects direct ones upon the digestive organs from which they came.

That such bacterial metabolic products do not act alone upon articular structures is indicated by clinical phenomena seen frequently accompanying digestive troubles. Many patients with abnormalities in absorptive functions of the alimentary tract, showing articular swellings, also are anemic as has been already intimated. The latter condition at such times plausibly may be explained as due to mildly deleterious effects of circulating bacterial products upon blood-forming tissues.

Enlargements of lymph nodes and spleen, which are very conspicuous features in other cases likewise may be attributed as well to the influence of such circulating bacterial products as to any other cause that has yet been suggested. The slight feelings of mental heaviness, headaches and irritability may be attributed theoretically to these circulating bodies although no direct experimental proof of their prolonged influence upon the nervous system is at hand nor is likely to become a possibility.

It would seem strange if the same circulating products which lead presumably to decided joint changes, anemias, losses in muscular tone, and nervous manifestations should have no influence upon the involuntary muscles and similar connective tissues of the stomach or intestinal walls; and therefore there should be no surprise over the actual clinical findings that have been recorded so often of frequent visceral saggings and dilatations associated with autointoxications.

The prominent feature in arthritic reactions to vascular irritants is the influence of circulating substances upon connective tissue. This is discovered upon microscopic examination to consist primarily in edematous changes rather than in active proliferations of connective tissue cells for at least a considerable time. Finally joint capsules and ligaments become visibly stretched by mechanical strains if subjected to deteriorating vascular influences long enough.

Relaxing processes must be considered always to be the result of several influences. First to the direct reaction between the blood and the tissues, and secondly to the same bacterial irritants in the blood producing other effects upon other organs,—blood-forming tissues, nervous tissues, etc.,—and thus indirectly leading to combinations of physiological defects in blood supply and nervous control.

Under these combined slightly unfavorable influences muscles and connective tissues become less resistant and very slightly deteriorated. Joints, as already stated, become relaxed from stretching of weakened capsules and ligaments under the mechanical pressures and strains of body weight. And muscle tone in the alimentary tract probably becomes poor with resultant relaxations and dilatations. The latter result from the mechanical influence of food accumulations and distentions upon the poorly resisting supports and walls of the digestive organs.

Tendencies among persons leading inactive lives, who eat heartily, are toward the gradual development of indefinite symptoms sometimes expressed as getting out of condition. This is to be expected frequently, yet it is not necessarily observed in vigorous individuals. According to degrees of inactivity and to degrees of excesses in diets some persons become fat and relaxed; others relax without storing up fat; and the small proportion who have been born with, or who have acquired weak points, develop articular symptoms if the slight irregularities persist long enough to overcome joint resistances.

The beginnings, consisting of slight feelings of mental heaviness, headaches and occasional slight indefinite digestive symptoms, loss of muscular tone, etc., presumably make the gastro-intestinal tract remain relaxed and dilated at first only to a very trifling degree. Directly, or indirectly, in ways already explained, tendencies slowly develop toward greater relaxations, and large amounts of food ingested help to increase them still further.

Absorptions become more and more abnormal very gradually in consequence of weakened peristalsis, or increased permeability of the gut, or from both conditions combined. If conditions are not changed, this cycle of slight defects leads

to vicious cycles of increasing ones until there begin to appear more apparent evidences of the harmful action in secondary anemias, transitory joint and muscle pains, beginnings of joint swellings, decided atony of the stomach walls, etc. And finally out of an obscure beginning develops perhaps a well marked case of gastroptosis or visceroptosis with pronounced arthritic symptoms.

The point which the writer wishes to emphasize is that *in this instance ptosis is not the cause of arthritis but both have a common origin;* and that when this origin is properly dealt with, there will be a recession of symptoms both in joints and in the stomach, provided symptoms have not existed so long that physiological limits have been exceeded from which return to a normal anatomical condition again is possible.

Instead of simple inactivity and over-eating, the starting point for ptosis with excessive absorptions may be in catarrhal inflammations and ulcerations of stomach or intestine. Occasionally following typhoid fever there are arthritic manifestations without factors of over-distention of the stomach or the dragging weights of gastric accumulations.

Before visceral saggings appear in these instances to any pronounced degree arthritic lesions may develop, and cultures of B. coli have been recovered locally from affected joints suggesting the nature of the toxemia and infection. Here the causes presumably lie in part in destruction of intestinal defences, namely, the mucosal lining and lymph nodes of the bowel by the invasion of typhoid bacilli. Anemias and joint symptoms in this instance develop from abnormal absorptions, as just explained, but without the well marked mechanical influence of distentions and of gravity acting upon the organs and their contents.

Clinical experience teaches practically that there are many different grades of arthritis and ptosis simultaneously associated; that extreme ptosis may exist with no arthritic symptoms; that joint lesions may develop practically without ptosis; and that all intermediate stages occur which show wide variations in times of development.

Ptosis may be partially corrected at times by mechanical supports with no appreciable relief to the joints. At other times mechanical supports alone when used in treatment of visceral saggings ameliorate arthritic symptoms; and it should be emphasized again in this type of cases that dilatations and saggings are not the causes of arthritis but are the result of other conditions. The latter are the origins of both.

Developments always depend upon several variable factors; local resistances of different tissues including those of the joints and gastrointestinal tract; and upon variable blood pressures, absorptions, excretions, and ingestions that have been mentioned which determine degrees of concentrations in the circulation.

Local narrowings of the lumen of the gut by strictures, cancer, outside pressures and intestinal adhesions often have the effect of producing greater degrees of atonies and saggings and also quicker development of them. These are extremely important and may require very radical surgical treatment.

VISCERAL PTOSIS RESULTING FROM STRETCHINGS OF THE ABDOMINAL WALLS AFTER REPEATED PREGNANCIES.

Marked saggings of stomachs may occur occasionally without development of joint symptoms, and without anemia or other symptoms of autointoxication. It is interesting to observe, therefore, that the origin for visceral displacements in these instances at first lies simply in loss of mechanical support which is usually afforded by elastic abdominal muscles. In such women despite the draggings upon connective tissue supports, blood vessels and nerves the visceral organs may perform their physiologic functions well.

Sooner or later, however, there is likelihood in many individuals that these displacements will interfere with normal function. Through failure of peristaltic functions, and from constipations that at times cause ulcerations of the mucosa, finally there may result defective action of the mucous lining as already described. Then there are added to the effects of lax abdominal walls those due to intestinal toxemias.

In some women with relaxed abdominal walls caused by many childbirths it may be truly said that ptosis long precedes development of arthritic lesions, but there still is the choice of considering abnormal laxity of the abdominal muscles the cause of ptosis and circulating bacterial products the cause of arthritis; that neither would have occurred without a primary cause for both in the stretching of the abdominal walls.

CONGENITAL ANATOMIC VARIATIONS IN STOMACH AND INTESTINES.

To Goldthwait is due the credit of having brought forcibly before the medical profession again the interesting relationships between gastroptosis, enteroptosis and rheumatoid disease; and to him the importance of congenital features in the etiology of these conditions became apparent.

To quote directly from his paper in the discussion of "congenital features in the etiology of gastroptosis and enteroptosis," he says, "at first it was supposed that the condition (ptosis) was wholly acquired as the result of bad posture, irregular habits of eating, improper costume, etc., but as the work developed it soon became evident that while these features are of importance and may lead to moderate degrees of ptosis, in a very large number of the cases congenital conditions represented the chief element. This fact was not previously appreciated by the

writers and as the literature makes no mention of it, it seems wise to consider the subject more fully here. It is known to the anatomists that a very considerable number of subjects, about one in every five, are found to have a mesentery upon the ascending and descending colon and the observations of the writers seem to show that with this greater mobility of the colon there is a correspondingly greater mobility of the stomach. . . The obvious result of this is that as long as the child is the infant and its activities and habits are largely those of the quadruped, very little disturbance occurs, but when the erect posture is assumed the disadvantages of such formation are evident. . . With the stomach the erect position must result in sagging downward of the organ," and "with such displacement, if the stomach is affected there must result a gradual absorption of the retroperitoneal and intra-abdominal fat tissue, thus naturally increasing the possibility of the visceral sag, and naturally interfering with the nutrition."[4]

There seems no question about the prevalence of anatomic variations. Definite figures, about one person in every five, indicate how commonly variations do occur. To some persons, however, the conclusions of Goldthwait and Brown, that congenital variations are important factors which contribute to interference with nutrition do not seem as plausible as the supposition that moderate congenital anatomic variations do not interfere very seriously with nutrition.

Anatomic ones, which in this instance are assumed to be defects, should be considered important etiological elements at times, probably, it seems to the writer, as this assumption harmonizes with the importance generally attributed to variations, favorable and unfavorable among all living things.

The point which is open to question is whether the twenty per cent. of persons showing defective structural variations represent a corresponding per cent. of physiologic ones. Simply as a matter of opinion, the writer would be inclined to consider only the severe grades of congenital or acquired anatomic peculiarities as being serious enough to lead to appreciable impairment of physiologic functions. The topic is an extremely interesting one and serves to call attention again to variations which are ever present and which always must be thought of.

Neither the existence and influence of variations, nor their range and frequency, seem to be taken into account sufficiently by many persons; that upon unusual combinations of several variable factors many differing apparently contradictory, clinical observations are based.

If all the theoretical combinations, which are mathematically possible when several elements vary independently and enter into different combinations with each other, were more familiar to everybody and came immediately to mind without effort, there probably would be less fruitless search for single unknown causes for obscure conditions. The confusing clinical findings which are so difficult to understand then might be satisfactorily explained by these combinations of unusual variations without looking always for unknown causes.

PTOSIS DUE TO FAULTY POSTURES.

The effects upon abdominal organs from relaxations of abdominal walls and pressures of the ribs accompanying habitual bending of the vertebral column, although important, will not be discussed at length. But the influence of intestinal auto-intoxications upon muscles and ligaments of the back presumably is similar to the effects observed at times upon other joints and upon the digestive tract.

The mechanical effect of the weight of the head, arms and trunk acting upon relaxed muscles of the spine and upon weakened connective tissues of the spinal articulations is to produce faulty postures. Growing children, independently of pronounced intestinal bacterial intoxications, show similar laxities and faulty attitudes when greatest demands are made upon the digestive powers by rapidly increasing body structures. Blood presumably then also is inferior in quality with slightly unfavorable proportions of constituents if tissues take up food materials from it at a rate which the alimentary tract has difficulty in contributing to the blood stream.

The benefit derived from orthopedic appliances occasionally in all these temporarily relaxed conditions is very striking. Properly fitted back braces with abdominal supports occasionally are sufficient to terminate vicious cycles which have been started, and this therapeutic measure alone in rare instances permits the gastro-intestinal tract to functionate more normally, leading directly to the subsidence of auto-intoxication symptoms.

Such relief from supports helps to impress upon the mind the probability that extremely defective postures seen in some severe grades of arthritis deformans play an important rôle in perpetuating joint lesions through secondary visceral changes and intestinal toxaemias in these patients.

PRACTICAL USES OF BIOLOGICAL IDEAS IN TREATMENT.

When a house is being built there is no doubt about the advantage of knowing something concerning building materials and houses in general; and when a person is to be restored to health there should be no explanation needed that knowledge of normal human functions, causes of abnormal ones, and familiarity with therapeutic agents, will be equally useful in treatment of disease.

Whether the particular problem deals with arthritis, ptosis, or other trouble, the greatest

chances for improvement in treatment now undoubtedly lie, the writer believes, in better understanding of broad general principles governing the life of living tissues; in knowing more accurately interactions among the complex structures of the human body.

It seems that increased knowledge of many pathogenic bacteria, and of definite chemical problems perhaps has influenced the medical profession into dealing with all obscurities in a direct way, as though single causes primarily underlie all pathological conditions, as they do in specific bacterial diseases. But health, on the contrary, always represents the combined influences of many physiologic elements, and inadequate understanding of these physiological combinations are the defects which stand forth most prominently now when single well defined causes for disease have been studied comparatively exhaustively.

The reasons for the present situation are not difficult to understand. Studies in physiology, physiological chemistry and cellular biology are complicated, and naturally they have been avoided for more simple problems that can be convincingly proven and for methods that can be applied reliably in treatment. Search has gone on so incessantly, however, that the majority of simple things have been discovered and future accomplishments must necessarily be concerned largely with more difficult problems.

As has been stated in the beginning, now there is no alternative left progressive physicians except to grapple with complexities and generalities because, although neglected, they are important features of every situation. And exactly how important they are is shown perhaps by the fact that success in treatment is still far from perfection.

It can be truthfully said now, instead of obtaining comprehensive general conceptions first in any given case by rapid review of all possible contributing causes, and following up the ideas thus gained by accurate judgments of the degrees of defective function each contributing cause exhibits, that there often is an entire disregard for the fact that all states, normal or abnormal, always represent combined influences of many physiologic elements, and that each element exhibits important individual variations.

The strong tendency to select and treat some single prominent defect by a single remedy in a fixed way very commonly makes treatments incorrect both qualitatively and quantitatively. And these defects will not be overcome by additional discoveries, but by better comprehension and more skill in application of the facts which are already known to physiologists and biologists.

The writer several years ago started ambitiously to investigate arthritic diseases, expecting to select favorable cases for study and thinking perhaps to clear up some obscurities by discovering new interesting micro-organisms or other causes.

It was not very easy to find pure types of joint disease which represented undoubtedly the actions of single etiological defects; and combinations of well known causative factors gradually were recognized of greater importance than they appeared to be at first glance as causes for obscure clinical appearances.

On consideration, when it was appreciated fully that numerous variations are recorded for every known physiological and anatomical fact, it seemed extremely probable that exceptional variations might simultaneously occur with more than one etiological factor very frequently, and lead to confusing obscurities that naturally would be ascribed to an undiscovered single cause when none really existed.

Obscure clinical appearances are not described in the literature as originating in these unusual combinations, but they must occur, and underlie many situations that we are unable to explain.

This line of reasoning led to consideration of the theoretical possibilities that exist among combinations of variable ingestions, absorptions, excretions, concentrations in the blood, resistances of joints, and resistances of the gastro-intestinal tract.

And it was seen that facts enough were already known to account roughly for all confusing clinical observations that have been made concerning digestive disorders and joint manifestations. In brief, that the obscurities were due in large measure to the writer's lack of familiarity with the situation, and to his poor realization of what established facts will account for in a satisfactory manner.

The writer is strongly of the opinion that others like himself are confusing obscurities that are due to their own lack of accurate knowledge of the problems, with assumed undiscovered causes for arthritic disease which exist only in the imaginations of the persons who assume them. This does not signify, however, that many things do not yet remain unknown, but that there are some important obscurities which can be cleared up only by much more careful study of possibilities of the facts known at present.

When patients are seen who show severe grades of ptosis with no arthritic symptoms, there is no justification for the conclusion, sometimes made, that no relationship exists between these two states. It only proves that the relationship is not a very simple one, and that joint resistances at times may be great enough to withstand pronounced abnormal anatomical conditions in the viscera. Such visceral displacements may, or may not, be accompanied by abnormalities of function in these organs, and joints will, or will not, be involved depending upon their healthy vitality in successfully resisting harmful vascular influences that may result finally at times from ptosis.

In order to demonstrate the influence of ptosis conclusively upon joint conditions it is necessary to have very unusual circumstances. Firstly, both ptosis and arthritis must exist in easily recognizable, advanced degrees in the selected case. And in the demonstration there must be no change made in diet, habits of life, or in treatment of the digestive tract except in the single therapeutic measure of mechanically supporting the abdominal viscera more nearly in their normal position.

There must exist in the individual just the right degree of joint resistance, a very delicate balance which is near the normal physiologic limit of tolerance of the patient's particular joints and which is easily affected by any slight change for better or worse. And it should be recollected that four fifths of patients with auto-intoxications probably will not exhibit definite joint lesions on account of the usual high degree of joint resistances.

There must also exist just the right proportion between rates of absorptions, ingestions and excretions to have the influence of the abdominal support show itself upon vascular proportions sufficiently to modify the latter and to restore healthy vascular balance again.

The writer has seen only one case personally in which support of the abdomen alone was followed by subsidence of definite joint pains promptly together with general improvement in health. One good example, however, is sufficient to demonstrate the relationship. The instance occurred in a small, inactive man of fifty years whose occupation constantly kept him in a sitting posture with back bent. Upon standing the abdomen was very prominent and sagging. The abdominal muscles were thin, relaxed and weak, and the patient had the sallow anemic appearance and lustreless eyes of an auto-intoxicated person.

A temporary support of adhesive plaster strips was applied to the lower abdomen while the patient was lying upon his back with the abdominal viscera more nearly in normal position, Upon standing again relief from indefinite heavy sensations in the abdomen was noticed immediately and the patient remarked that he thought the cause of his trouble had been found. Nothing more was done at first because of the decided relief, and the patient continued his usual personal habits of life unchanged. Subsequently he was fitted with a permanent abdominal support and his digestive functions were regulated, but the beginnings of the return to health were in the single therapeutic measure of supporting the obviously sagging viscera.

Ordinarily in such cases other treatments are instituted immediately besides the one of mechanically supporting the viscera; and then it becomes entirely unjustifiable to attribute subsidence of symptoms to the mechanical feature alone. This is shown by internists who overcome moderate degrees of ptosis occasionally without aid of mechanical devices by combined treatments with drugs and regulations of diets. These measures restore normal muscle tone in the muscular walls of the digestive tract and normal functions in its epithelial lining. And coincident with these changes there is re-establishment at times of normal anatomic relations.

Too great emphasis should not be laid upon ptosis because it is simply one anatomic factor that may affect digestive functions. Equal importance should be placed upon combinations of physiologic influences that are concerned in the production, absorption, and excretion of bacterial substances and which determine proportions of the latter in the circulation.

Since ptosis, whether due to congenital or acquired causes is liable to influence digestive functions harmfully, and indirectly also the joints, by setting up harmful pathologic cycles, it should be treated whenever it exists in sufficiently decided degree. In treatment, slight or pronounced degrees of deviations from normal *physiological* function determine the simplicity or severity of therapeutic measures used in correction of these *anatomic* defects.

METHODS OF TREATMENT FOR PTOSIS.

These include modifications in diets, prescription of digestive enzymes, acids, ant-acids, olive oil, bile preparations, tonic drugs, cathartics, intestinal antiseptics and other usual medical measures; lavage; mechanical supports for the abdomen and for defective postures; and abdominal surgery.

The writer does not propose to go extensively into discussion of details, however, although success depends largely upon skill in handling, and experience with the minor features in treatments. Such details belong to the arts of gastro-enterologists and surgeons and must be sought in works upon these subjects. A few simple ideas, probably well known to most persons, can be mentioned appropriately, however, regarding general biological aspects of treatment.

When correction of digestive defects is undertaken the exact physiologic deficiencies producing them always have to be considered; whether contributing factors can be identified in any of the following ones,—in the nervous control, in mechanical distentions from food materials acting upon the musculature and mucosa, in harmful mechanical pulls upon relaxed viscera and their contents by the force of gravity, in variations of blood pressures, and in physical and chemical influences of circulating blood.

The digestive tract has to be thought of alone first, and how it may be influenced in these various physiological ways; and then also, in order to modify defective contributing physical and chemical influences in the blood that are exceedingly important, other organs of the body have to be considered and possibly may require treatment before normal relations are restored perfectly in the tract toward which therapeutic measures are mainly directed.

Treatments are incomplete which do not take into consideration at the outset the conditions of the kidneys, nervous system, blood-forming tissues, heart, lungs, muscles, liver, skin, and all important organs until the individual finally is dealt with as whole, structurally and physiologically.

This comprehensive biological method is entirely different from the selection and treatment of single contributory defects; but there is no antagonism, however, between the biologic way and single cures except with the incompleteness of the latter. Ptosis is one defect, which when considered mainly from its structural aspects, is frequently treated incorrectly from a biological point of view. And the many disappointments in treatment of visceral ptosis for arthritic conditions should be ascribed to lack of complete biological understanding of the presenting problems by physicians rather than to nonexistence of relationships between ptosis and arthritis.

A few concrete details of treatment in contrast to general conceptions will be mentioned. In treatment of alimentary conditions rates of absorptions and of peristalsis together are regulated by the writer by simple modifications in diets, cathartics, lavage, tonics, digestive ferments, &c. Bacterial putrefactions are treated with fermented milk and intestinal antiseptics. Curdled milk is an easily digested food and possesses inhibitive powers over the growth of putrefactive organisms. Renal functions are modified by water drinking and by diuretics. The quality of the blood is influenced by administration of iron, quinine and arsenic; and the nervous system and blood pressures by tonics like strychnia, glandular derivatives, hydrotherapy and other physical agents.

If there are obvious degrees of ptosis; namely, changes that patients recognize themselves as having developed out of a previous normal state, orthopedic supports are used immediately. If the degree is slight and the individual hasn't a decidedly bad posture, other remedies are relied upon at first because of the tendency of wearing artificial supports too long when they are comfortable, thereby weakening still further the natural supports that are already weak. Orthopedic appliances most used are abdominal belts and pads. These are often combined with supports for the vertebral column and shoulders in light steel back braces. Belts presumably assist also in regulating blood pressures in relaxed flabby abdomens, and may owe their good effects as much to this action as relief from harmful mechanical strains of musculature and mucosas.

The harmful effects of gravity are logically treated by having patients lie down after eating hearty meals for half an hour or so without going to sleep. The relief afforded by this simple measure is pronounced at times. Mechanical distentions naturally will be treated by avoidance of large ingestions at any single time, and by prescription of small ones frequently.

The matter of catharsis is a very important one, as by it the very important normal functions of absorption and peristalsis are influenced; but the advisability of extreme purgation followed by strong stimulation; of rest in bed during these treatments; of long continued mild catharsis; of divided small doses versus single large ones; of the abuse of cathartics and of their selection; of the exact amounts and qualities of food taken, etc., are matters which expert gastro-enterologists can explain better than the writer and must be determined mainly by experience.

In spite of skillful treatment some patients grow progressively worse and go on occasionally to fatal terminations, particularly those who show enlargements of liver, spleen and lymph glands. Others have pathological conditions due to chronic ulcerations of the colon; strictures, obstructions and congenital peculiarities of the bowel, and surgical interference is indicated for these graver lesions of the digestive tract. They can be considered best, however, in a separate paper.

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(To be continued.)

DIVERTICULITIS.*

BY JOSEPH STANTON, M.D., BOSTON,

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WHEN one considers the enormous amount of literature today on the various surgical subjects it is extremely difficult to select a subject that has not been covered from almost every point of view. In selecting one for consideration this evening my mind has perhaps been somewhat influenced by the occurrence of five cases of diverticulitis (one congenital and four acquired) in my practice during the past two years.

The occurrence of this number of cases of what was considered, up to a few years ago, an anatomical or post-mortem curiosity led me to think that this was not so rare a disease as one might believe.

The influence of Fitz's work on Meckel's diverticulum cannot be overestimated for it called attention to a subject which, up to that time, had attracted comparatively little attention. Later, the work of the Mayos proved that acquired diverticula of the large intestine, especially of the sigmoid, were a not unusual condition, and in 1907, at the meeting of the American Surgical Association, Dr. Mayo presented a series of cases in which he called attention to acquired diverticula. Dr. George Brewer of New York has reported a series of cases of this pathological condition, with some interesting

* Read before the Middlesex Medical Society, Nov. 20, 1912.

comments on its complications, treatment and sequelae.

Before considering acquired diverticula I desire to say a few words in regard to Meckel's diverticulum, which is a true congenital diverticulum in that it embraces all the coats of the intestinal wall and is due to a persistence of the omphalo mesenteric duct. This duct should become obliterated between the fourth and sixth weeks of fetal life. It is accompanied by an artery and vein, branches of the mesenteric, a fact to be borne in mind when ligating. Statistics vary as to the frequency of its occurrence; some state that about two per cent. of human beings are afflicted with it. Post-mortem records at Johns Hopkins report one case to every seventy-two autopsies. It is usually attached to the ileum and is rarely found more than three feet from the cecum. When inflamed its symptoms closely resemble those of acute appendicitis; the pain, however, is situated nearer the umbilicus. About ten per cent. of the cases of acute inflammation of Meckel's diverticulum are fatal if untreated.

The treatment, of course, is prompt removal, with inversion of the stump, similar to the method of treating the stump of the appendix.

The most alarming complications due to this condition are caused by adhesions of the diverticulum to the bowel or abdominal wall, causing obstruction or strangulation of the intestine. The report of the following case well illustrates this condition.

EVELYN R. A child of six, of healthy parents, had been sickly since early infancy. The mother's story was to the effect that the child had never been well; appetite was poor, and in spite of the most careful supervision of her diet, vomiting would occur every few days. During these attacks she would vomit for two or three days, and then slowly improve, only to have a recurrence of vomiting again. These attacks were not accompanied by rise of temperature or other signs of constitutional disturbance. Her bowels were always constipated, requiring very large doses of cathartics.

Many physicians had examined the child and a few of the diagnoses of her condition were as follows:

New growth.
Tubercular peritonitis.
Malnutrition.
Chronic duodenal indigestion.

In November, 1911, the physical examination was as follows: Poorly developed, emaciated child, extremely peevish and irritable, showing evidences of moderate rhachitis; small scars on the right side of neck due to suppurating glands at two years of age. Examination of heart and lungs showed nothing abnormal. Abdomen protruberant. Visible peristalsis in upper abdomen and to right of umbilicus. Not tender to palpation. Percussion revealed flatness over practically the whole of abdomen except about umbilicus. No glands or other masses felt. Rectal examination was negative. Fluid wave was present.

In view of the fact that fluid was present I felt reasonably sure that I was dealing with a tubercular peritonitis. The visible peristalsis was due to some obstruction, probably glands or adhesions.

The following morning I examined the child again and was surprised to find the abdomen retracted rather than distended. There was no evidence of fluid in the abdomen. Just previous to my visit the child had vomited about two and a half quarts of foul smelling fluid, and on introducing a stomach tube I was surprised at the enormous quantity of fluid which the stomach would hold.

In view of the history and later developments, obstruction was the only plausible diagnosis. At operation, a few days later, I found an enormously distended stomach, duodenum and proximal 6-8 inches of jejunum. The stomach was very low in the abdominal cavity, the greater portion of it being below the level of the umbilicus. The duodenum and jejunum were almost as large in circumference as the stomach and their walls were enormously hypertrophied, the layers of muscular fibres standing out very prominently. The cause of all this trouble was an adherent Meckel's diverticulum which had practically occluded the lumen of the bowel. This was easily freed and removed and the contents of the bowel gurgled on their way. Needless to say that her return to health has been extremely rapid and satisfactory.

Acquired diverticula of the intestine are not true diverticula, in that they do not embrace all the coats of the intestine. They may be likened to a hernia of the mucous membrane protruding through the layers of muscle fibres. They are most commonly found along the mesenteric border of the large intestine, particularly on the sigmoid, rarely in the rectum, and almost never above the splenic flexure; in other words, they are found in that section of the bowel developed from the embryonic hind gut. They are found in the epiploical appendages. This explains their frequent occurrence in the sigmoid and their rarity in the rectum.

ETIOLOGY.

Their etiology is hard to explain. They are more common in fleshy people during and past middle life; increased intra-abdominal pressure due to contipation seems to be a factor in their causation, although one of my cases had never been constipated, in fact, he rarely had less than three movements daily. They are more frequent in males than in females. Degeneration of the muscular fibres of the intestinal wall probably explains in part their formation. They may be single or multiple. Why they are more common along the mesenteric border and embrace the epiloical appendages has not been satisfactorily explained. Various explanations as to the arrangement of the blood vessels in the appendages have been brought forward to explain the occurrence of diverticula at these points. Their occurrence during the so-called cancer age is of considerable importance in view of the fact that in about one-quarter of the cases of diverticulitis, found at operation, malignant changes are taking place.

After a most thorough and comprehensive

study of a large series of cases of this disease, Dr. McGrath and Dr. Wilson, of the Pathological Staff of the Mayo Hospital, called attention to the possible origin of cancer in the isolated groups of cells found in cases of diverticulitis.

In many of the cases the epithelial cells of the terminal portions of the diverticula have become isolated and it is here that malignant changes are apt to take place. Frequently the tissues become inflamed about the diverticula, due to oozing of the intestinal contents and toxins through its walls, and a condition of peridiverticulitis, well described by Wilson, is produced.

When this condition is present a large mass the size of a hen's egg is frequently found, and in times past has been diagnosed as malignant disease of the intestine and then abandoned. These are the cases that have recovered when Christian Science has finally been resorted to after the surgeon has failed. Frequently a hardened mass of feces is found in the diverticulum very similar to those found in the appendix.

A certain number of cases undergo malignant changes and then we get symptoms of cancer of the bowel with eventual obstruction. Many cases of supposed primary cancer of the sigmoid are diverticula which have become malignant and if, in the future, you will examine your specimens carefully, after removal, you will often find one or more diverticula within the cancerous growth. No growth on the sigmoid can be branded as cancer until it has been most carefully examined.

SYMPTOMS.

The symptoms of diverticulitis have been described by many as those of a left-sided appendicitis. The onset usually is sudden, with pain more or less general, later becoming localized in the left side, and is usually severe and cramp-like in character. In my experience vomiting has not been so common, nor has the pain been so apt to start in the epigastrium as in cases of appendicitis. This I attribute to the nerve supply and the development from a different source than the appendix.

Tenderness soon develops and signs of localized peritonitis are found. The temperature is elevated and a tumor mass soon appears. This is frequently hard to find as the patients are usually very fleshy. When present, it is usually to the left of the umbilicus, or in the left lower quadrant and corresponds to the tender cake sometimes found about the appendix.

In two of my cases there has been a looseness of the bowels.

DIFFERENTIAL DIAGNOSIS.

Other conditions with which it may be confused are stone in the kidney or pus infections, but these are easily differentiated by the location of the tenderness and the accompanying urinary disturbances..

Where obstruction is due either to inflammation of the diverticulum or malignant changes within it, a differential diagnosis with carcinoma, with which it is most often confused, is extremely difficult. The recurrence of attacks is, of course, in favor of diverticulitis. The presence of blood in the stools favors cancer, but I have seen it in diverticulitis.

The history of left-sided pain, followed by temperature and later a mass is usually sufficient for diagnosis. When inflamed these diverticula may behave in many different ways. The inflammation may subside like a mild attack of appendicitis; or they may remain inflamed over a considerable length of time and a thickened, edematus condition of the bowel, so-called peridiverticulitis form, or abscess formation with subsequent rupture into the bladder or neighboring viscera, or through the abdominal wall, may follow. If they rupture extraperitoneally they are very likely to be followed by a persistent fecal fistula.

TREATMENT.

The treatment varies according to the age of the person and the conditions present. If the patient is old and the attacks are slight, it is better to leave him alone. If an abscess is present it, of course, must be evacuated. If the edema and thickening in the intestinal wall has been sufficient to produce obstruction colostomy had better be performed and later a resection if necessary.

If a mass is present and there is no question as to malignancy, a resection of four to eight inches of gut had better be performed, as advocated by Dr. W. J. Mayo. Similar treatment should be adopted when multiple diverticula are present.

REPORT OF CASES.

My first case was a man of thirty years of age, seen in November, 1910. Previous history was unimportant except for the fact that he had three attacks of what might be termed left-sided appendicitis, after one of which I was able to feel a mass about the size of an egg about two inches to the left and below the umbilicus. The mass was moveable and was tender, and lasted for a week or ten days. Except for two slight attacks during the following year he was well until October, 1911, when he had a very severe attack of cramps, nausea, rise of temperature and tumor formation. At the time of my examination a distinct tumor, rounded in shape, about two inches in diameter and tender to pressure could be felt two and a half inches to the left of and below the umbilicus, just below the point corresponding to McBurney's point on the right side. The tumor was movable. Tenderness disappeared after a few days and the tumor diminished in size. The bowels had a tendency to be loose.

At operation a few days later, a mass about the size of half a lemon was found on the middle portion of the sigmoid adherent to adjacent coils of bowel. Some adhesions were fresh, from the recent attack, while others were old and firm from the previous at-

tacks. There was a marked degree of peridiverticulitis and the bowel wall was very edematous and there was a great deal of thickening and infiltration of the fatty tissue about the diverticulum.

The mass was excised and upon examination a large fecal mass about the size of a marble was found in the diverticulum. The wound was closed with three layers of sutures of chromicized gut and Pagenstecher. The patient had rather a stormy convalescence, developing a patch of pneumonia, and a fecal fistula delayed the healing of his wound.

Two factors in this case are of particular interest: first, the age, the patient being only 30; and, second, the fact that he had never been constipated.

My second case was an elderly gentleman about sixty-five years of age, with a previous history of good health. For about a year he had indefinite attacks of pain in the left side of the abdomen. When seen for the first time, in March, 1912, he had obstruction of the bowel, nothing having passed through it for two days, in spite of enemata and large doses of cathartics.

At operation a cancer of the sigmoid, secondary to diverticulitis, was found close to the rectum. In view of the short period of obstruction and the good condition of the patient, I decided to do a primary resection according to the method advocated by Dr. W. J. Mayo, using a large rubber tube to complete the anastomosis.

The patient recovered from his operation and was having a fairly comfortable convalescence in the third week, when pneumonia developed and proved fatal.

The third case which I wish to report was a man forty-eight years of age with a healthy out-door occupation, being foreman for the gas company.

I first saw this patient in February, 1912. He had been more or less constipated for years and had had three or four attacks of left-sided pain previous to this attack. When I saw him he was tender to the left of umbilicus and was troubled with nausea, but no vomiting. A large, tender movable mass the size of an egg was felt above and to the left of the umbilicus. The temperature was slightly elevated.

This tenderness slowly disappeared and at the end of a month no trace of the mass could be felt. He has had one slight attack since then and operation was advised, but the patient would not consent.

The fourth case was very similar to the second, and was seen in June, 1912.

My fifth case is a man sixty-three years old, extremely fleshy, weighing about 220 pounds. He gave a history of attacks of "bilious colic" extending over many years. His pain has always been above and to the left of umbilicus. I have seen him three times within three months with attacks of very severe left-sided pain, accompanied by pain and occasional vomiting. At about the end of the second day a tender mass can usually be found on the sigmoid. Tenderness and tumor usually disappear within a few days. In view of his age and excessive weight, I have been rather reluctant to advise operative interference.

In closing I wish to present the following conclusions:—

1. That this is not a rare disease.
2. Recurrent attacks of left-sided abdominal pain, with tenderness and tumor formation, in the absence of any active urinary disturbance, are usually due to inflamed diverticula.
3. As a focus of chronic irritation it may be a starting point of cancer of the sigmoid.
4. Surgical removal is the only perfect cure.

A CASE OF INFECTION WITH HYMENOLEPIS (TAENIA) NANA, THE DWARF TAPEWORM.

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THE following case is reported chiefly because of its rarity, but also on account of certain unusual clinical features. The patient entered the Boston City Hospital, on the service of Dr. Francis H. Williams, and it is through his kindness that the case is reported.

Stiles[1] in 1903 predicted that further investigations would show that *Taenia nana* is one of the commonest intestinal parasites in the United States. Yet, up to the present time, only 76 cases have been reported in America.[2] More than half of these have been in the past five years; which means that, as more attention is called to the importance of this parasite in causing obscure symptoms, more careful examinations are being made, and more cases recognized. The present case, however, is the first that has been reported from New England.

S. P., male. Age, 17. Single. Shoe-worker. Entered hospital Oct. 21, 1911. *Family history* and *past history* negative. Habits good.

Present History. For two weeks before entrance felt nauseated at times, with slight dizziness and dull general headache. For about one week had occasional, sharp, sudden pains in left axilla, lasting about 15 minutes. No other pains. No diarrhea. Has always been slightly constipated. No vomiting. Micturition normal. No cough. Appetite fair. Vision good. Has been eating pork in some form daily for several weeks. Day before entrance headache became worse, and dizziness increased. Patient had great difficulty in standing. General malaise and weakness. No epistaxis. Bowels as before. On day of entrance was wrestling with another boy. Latter threw him, and knelt on his right arm. Patient lost consciousness, and woke up to find himself in a police ambulance on the way to the hospital. He was said to have had a convulsion during transportation.

Physical Examination. Well developed and nourished young man. Conscious, but apparently dazed. Shortly after beginning the examination, patient had clonic convulsive movements of hands and fingers, with the characteristic position of tetany, i.e. contractures of thumb, wrist, and forearm. These movements subsided after about five minutes.

The patient's face was somewhat swollen and puffy, especially under the eyes. The skin was pasty-colored. The rest of the physical examination was absolutely negative. The knee-jerks were normal. There was no Kernig or any other abnormal

reflex. No tenderness of calf or thigh muscles, or along course of great nerves.

Temperature 100. Pulse 70. Respiration 23. Urine examination negative. Blood-pressure 130 mm. Blood examination: White blood corpuscles, 10,400; red blood corpuscles, 4,800,000. Hgb., 70%. Stained smear. Red cells normal. Differential count of leucocytes:—

Polynuclears	61%
Lymphocytes	22%
Mast cells	3%
Esinophiles	14%

Oct. 25, temperature somewhat elevated the first twenty-four hours after entrance, then reached normal and has been normal since. No further convulsions. Puffiness of the face disappearing rapidly. Feels perfectly comfortable. No untoward symptoms of any sort. Passing a fair amount of urine, which is negative on examination. Blood smear shows some eosinophilia.

Blood smear repeated:—

Polynuclears	63.5%
Lymphocytes	23.5%
Transitionals	6%
Eosinophiles	7%

Examination of laked blood for *Trichina* embryos was negative. Examination of stool this morning showed many characteristic ova of *Hymenolepis nana*.

Oct. 27, patient was on a simple diet with free catharsis all day yesterday. This morning was given the following:—

℞

Oleoresini Aspidii 3jss
Divided in 6 capsules.

One capsule was given every fifteen minutes for 6 doses, followed in three hours by epsom salts, ℥i.

After treatment, patient moved his bowels very freely. Stools full of ova, and large numbers of complete dwarf tapeworms, varying in length from 5 to 10 mm.

Oct. 30, patient has had no untoward symptoms since treatment. Facial oedema now entirely gone. Feels perfectly well. Stools show no ova. General physical examination negative. Patient discharged well. Just before discharge a blood examination showed white blood corpuscles, 14,800. Stained smear:—

Polynuclear neutrophiles	60%
Basophiles	32%
Eosinophiles	8%

Patient was requested to present himself again in two months for re-examination of stool, but he failed to appear.

In this case, symptoms pointing towards the gastro-intestinal tract were practically absent, the only important one being nausea. On the other hand, the chief disturbances were those of the nervous system, severe headache, dizziness, and later convulsions and unconsciousness. This is in harmony with many of the reported cases.

The diagnosis is usually difficult to make, as there are ordinarily no symptoms pointing to an intestinal parasite. Sometimes there are gastro-intestinal symptoms:—diarrhoea alternating with constipation, colicky abdominal pains, vomiting, severe nausea.[5] Often, as in this case, symptoms from the side of the nervous system greatly outweigh the others. These are usually very severe, and may consist of headaches, disturbances of vision, dizziness, convulsions, spasms, fainting-fits, and pains in various regions. Often a very severe secondary anaemia results.[6]



Ova of Taenia nana found in feces. x 430.

The diagnosis can be made only by microscopical examination of the stool, and finding the characteristic ova, or more properly speaking, "onchospheres," as they contain an embryo. These ova have a thick double capsule, within which is found the embryo containing six hooklets. At either pole is a so-called "mammilate" tip, from which several filamentous appendages go off into the surrounding protoplasm. (See figure.) It is the possession of these filaments that distinguishes the *Hymenolepis nana*, or *Taenia nana* as it is more commonly called, from other members of the same genus.[5] The dwarf tapeworms themselves are too small to be noticed in the stool with the naked eye, unless present in very large numbers, as after treatment. In the adult stage they measure only from 5 to 45 mm. in length, although they contain 100 to 200 segments. This is the smallest tapeworm known for man. It is usually a parasite of children, about 70% of the reported cases being in children under the age of 15. Most of the cases reported have been found either by routine stool examinations, for other purposes, or by examination of the stool on a mistaken diagnosis. Deaderick[6] reports two cases where he supposed there was Uncinariasis, because of the grave anaemia and eosinophilia, but on examination only the ova of *Taenia nana* were found. In the present case the examination of the stool was made upon a mistaken diagnosis of probable Trichiniasis, because of the facial oedema, convulsions, and eosinophilia in the blood, together with the history of excessive pork-eating.

Facial oedema has been reported in four cases of infection with *Taenia nana*. These were all in children. Two were reported from New York by Schloss,[7] and the other two by Deaderick.[6] In the latter's cases the oedema involved not only the face and eyelids, but also the hands, feet, ankles, and legs up to the knees. This peculiar oedema, which in all the cases disappeared with evacuation of the parasites, furnishes some interesting evidence to apparently contradict the usual explanation for the appearance of the

primary facial oedema in Trichiniasis. This is said to be due chiefly to the obstruction and thrombosis of the smaller lymphatic vessels, caused by the circulating Trichina embryos.[8] In infection with *Taenia nana* the parasites are restricted to the walls of the intestinal tract, yet a very similar facial oedema results. In the latter case, it must undoubtedly be of toxic or inflammatory origin.

The disturbances of the nervous system are due partly to the absorption of toxins liberated by the parasites, and partly to direct stimulation of the sympathetic nerves, as the animal's head is buried very deeply in the intestinal mucosa.[9] It is enabled to do this by means of a retractable rostellum, crowned with 24 to 30 hooklets. Numerous cases have been reported from various parts of the world in which the parasite caused clonic spasms, and epileptiform and choreiform convulsions.[10] In only one case, reported by Schloss,[7] was there unconsciousness associated with such convulsions. The present case is the only one reported up to now in which the convulsions were of the peculiar character usually associated with tetany.

Eosinophilia has been found present in nearly all the cases in which blood examinations were made. The eosinophile count was always higher in children than in adults infected with this parasite. In this respect it follows the same rules shown by Grek and Reichenstern,[11] who made an extensive study of the eosinophilia associated with the ordinary tapeworms. They found that the eosinophiles constituted 5.7 to 6% in their cases over 13 years of age, whereas, in younger individuals the average count was 12.4%. In these children there was not merely a relative, but also an absolute increase of eosinophiles.

In most cases the origin of the infection can be traced to food contaminated by the excrement of rats or mice. The latter are hosts of a dwarf tapeworm, *Hymenolepis nana fraterna*, which is considered by many authorities to be identical with the species found in man.[12] The rat-stage, however, is not a necessary intermediate step in human infection, as infection from one person to another, and also auto-infection, are both highly probable. The onchospheres, when swallowed by rats, have their capsules dissolved in the intestinal juices. The liberated embryos bore into the intestinal villi, and there develop as the intermediate larva, the "cysticercus." Later these may reach the lumen of the intestine and develop into adult worms, discharging new onchospheres with the feces. This same process probably occurs in man, although this is not yet definitely established. The fact that some cases have lasted as long as three years,[13] in spite of several apparently successful courses of treatment, seems to point to auto-infection from cysticerci which have been protected from the action of the drugs.

The only drug which has been found effective in the treatment of this worm is malefern, in any of its forms. The U. S. P. oleoresin aspidii is as good as any. The other vermifuges, santonin, thymol, naphthol, etc., have all proved unsatisfactory as compared with malefern.

After an apparently successful single treatment, one should not feel that the patient is absolutely cured. The possibility of auto-infection from cysticerci, which may have been implanted in the intestinal wall, is always present. Therefore an examination of the stools should be made several months later to determine the presence or absence of the ova. If present, the treatment must be repeated.

It is worth again emphasizing the fact that the diagnosis of this tapeworm cannot be made usually from the clinical aspects of the case, or from the macroscopic examination of stools. It rests practically always upon finding the characteristic ova by microscopic examination.

There are undoubtedly many cases of infection with this tapeworm in this vicinity which have been unrecognized. They are probably often considered to be obscure, nervous diseases. The number of known cases will surely increase rapidly as soon as a routine microscopic stool examination is made of these obscure cases.

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PATHOLOGY OF TYPHOID SPINE.

BY MARK H. ROGERS, M.D., BOSTON,

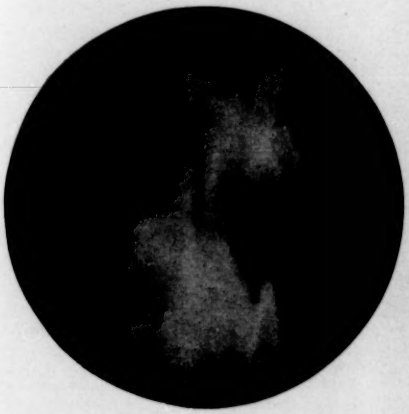
Orthopedic Surgeon to Out-Patients.

(From the Orthopedic Department of the Massachusetts General Hospital.)

THIS paper is a study of the pathology of "Typhoid Spine," and is based on the reported cases, especially on those that give an x-ray report, and on the x-ray findings of two cases reported here. Of the ninety cases reported in the literature since this condition was first described by Gibney in 1889, there have been no deaths, so that we have no chance to study the pathology post-mortem. Therefore we are dependent for exact knowledge on the x-ray, and of these ninety cases there were eleven with x-ray reports.

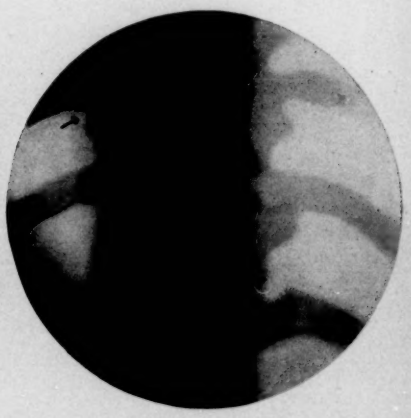
In the first report Gibney made the statement that he believed there must be some definite bone or articular lesion to account for the clinical facts. Soon after this Osler gave his opinion that this condition was generally a neurosis, basing it chiefly on the fact that the pain and disability were out of proportion to the condition found on physical examination. The impression made by this statement has lasted to this

PATHOLOGY OF TYPHOID SPINE—ROGERS.



Case 1. Arrows indicate a distinct focus in the superior articular surface of the second lumbar and in the inferior surface of the first lumbar vertebra. These lesions are identical with those appearing in the long bones due to the same infection, and result from an actual loss of bone substance.

(From the X-ray Department of the Massachusetts General Hospital, W. J. Dodd, M.D., Roentgenologist.)



Case 2. Arrows indicate similar lesion as in Case No. 1. In this case the lesions show on both sides of the superior surface of the tenth and the inferior surface of the ninth.

(From the X-ray Department of the Massachusetts General Hospital, W. J. Dodd, M.D., Roentgenologist.)

spread so that the x-ray will show more extensive involvement of the cortex. Evidently the typhoid organism is not virulent enough in the bone to cause a constantly increasing osteomyelitis, such as the cocci group, but tends to remain localized, and to die out. If we take into consideration the sudden onset of these lesions, the fact that they may be multiple and yet localized and circumscribed, there is a strong suggestion that they are the result of septic emboli, and this same condition is carried out in the spinal lesions of my two cases.

Before taking up the study of the x-ray findings in the cases from the literature the following cases will be reported chiefly on account of the conditions found in the x-rays.

Case 1. E. J. B. Age, forty-nine. Married.

Family History. Not important.

Past History. Not important. Always well.

Present Illness. In February, 1910, typhoid fever. In bed four weeks. Recovered rapidly and was ap-

caused pain. Knee jerks lively. No ankle clonus; no disturbances of sensation.

Temperature ran from 100 to 101 degrees at night for three weeks, with three days of 103 degrees. Widal, positive. White count, 9600. Differential count, 67% Neutrophibes, 33% Basophibes. Plaster jacket was applied, which gave some relief, although for a week morphia was required. Pain at first was on the right side of the back, later extended to the left side. At the end of about four weeks temperature became normal and the patient was up and about the ward, with very little pain. X-ray of the lumbar spine taken, which was negative. X-ray later taken of the lower dorsal spine showed lesions similar to Case 1.

primary facial oedema in Trichiniasis. This is said to be due chiefly to the obstruction and thrombosis of the smaller lymphatic vessels, caused by the circulating Trichina embryos.[8] In infection with *Taenia nana* the parasites are restricted to the walls of the intestinal tract, yet a very similar facial oedema results. In the latter case, it must undoubtedly be of toxic or infl

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After an apparently successful single treatment, one should not feel that the patient is absolutely cured. The possibility of auto-infection from cysticerci, which may have been implanted in the intestinal wall, is always present. Therefore an examination of the stools should be made

(From the Orthopedic Department of the [illegible] Hospital.)

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In the first report Gibney made the statement that he believed there must be some definite bone or articular lesion to account for the clinical facts. Soon after this Osler gave his opinion that this condition was generally a neurosis, basing it chiefly on the fact that the pain and disability were out of proportion to the condition found on physical examination. The impression made by this statement has lasted to this day, and McRae, in his article on typhoid fever in Osler's System of Medicine, states that there may be some bone lesion, although it is often a pure necrosis.

In studying the reported cases it is clear that there is a very definite clinical story. so that there should be one pathological process as the basis. Following an attack of typhoid fever, during the convalescence or within six months time, there is a sharp, rather sudden onset of pain in the back, usually brought on by some slight injury, or sudden motion. The pain is described as much more severe than is usual in any case of tuberculosis of the spine, and is made worse on the slightest motion. There is usually tenderness to pressure over the portion of the spine corresponding to the pain, and all motions are very much limited. There is often a few degrees of temperature at the beginning, there is never any distinct kyphos. The knee-jerks have been reported as increased, but there is no other sign of paralysis, there being often a decided disinclination to use the legs on account of the pain. This condition lasts from several weeks to from two to three months, and there may be either a complete recovery or there may be some limitation of motion of the spine, and occasionally some deformity showing definite bone changes.

The pathological process of other bone lesions due to the typhoid bacillus is well known, and those occurring in the tibia may be taken as a description. The simplest process is a localized bone abscess, sometimes three or four in the same bone, in the cortex just beneath the periosteum. These show in the x-ray as a rounded loss of substance, casting a shadow of different density than normal bone. They are generally small, about the diameter of a lead pencil. The typhoid bacillus has been recovered from such conditions, showing that they are true infections and not simply bone cysts. The periosteum may become involved and the process may spread so that the x-ray will show more extensive involvement of the cortex. Evidently the typhoid organism is not virulent enough in the bone to cause a constantly increasing osteomyelitis, such as the cocci group, but tends to remain localized, and to die out. If we take into consideration the sudden onset of these lesions, the fact that they may be multiple and yet localized and circumscribed, there is a strong suggestion that they are the result of septic emboli, and this same condition is carried out in the spinal lesions of my two cases.

Before taking up the study of the x-ray findings in the cases from the literature the following cases will be reported chiefly on account of the conditions found in the x-rays.

Case 1. E. J. B. Age, forty-nine. Married.
Family History. Not important.
Past History. Not important. Always well.
Present Illness. In February, 1910, typhoid fever. In bed four weeks. Recovered rapidly and was apparently well. About Aug. 1, 1910, six months after typhoid, there was a sudden attack of severe pain in the lumbar region, coming on in the night. Since then the pain was continuous and so severe that he had to stay in bed most of the time. He was admitted to the hospital six weeks after the onset of the pain. A plaster of paris jacket was applied with some relief, before entrance. On admission the pain was very intense, so as to require morphia to obtain sleep.
Physical Examination. A well developed man. Chest negative. Abdomen negative. All motions of the hips were free except flexion with the knee straight, which caused pain in the back. Reflexes normal. The back was held rigid, and was so painful that the patient could not stand. All motions were extremely painful. There was no tenderness nor deformity. The pain was located about the second or third lumbar. Urine normal. The temperature ranged from normal in the morning to 100 degrees at night for two weeks after admission; then it became normal. X-rays of the spine were taken and showed the lesions to be described below. Widal reaction 1-50 was positive. He was discharged after six weeks' stay very much improved, still wearing a plaster jacket. A letter from the patient a year later stated that he was absolutely free from symptoms, and that there was no stiffness of the back. He was still wearing a leather jacket for protection.

Case 2. R. A. C. Age, twenty-one. Single.
Family History. Not important.
Past History. Not important.
Present Illness. In August, 1912, typhoid fever of not severe type; in bed one month. Went to work in November. The last of November he began to have pain referred to the right side of the back just at the lower border of the ribs. Morphia was necessary before he was admitted to the hospital.
Physical Examination. Chest negative. Abdomen held rigid and somewhat tender all over, flat, no masses felt. Spine, no kyphos, tenderness to deep pressure at the lower border of the ribs, over the quadratus muscle. Spine held absolutely rigid, with much muscular spasm. Any attempt at motion caused pain. Knee jerks lively. No ankle clonus; no disturbances of sensation.

Temperature ran from 100 to 101 degrees at night for three weeks, with three days of 103 degrees. Widal, positive. White count, 9600. Differential count, 67% Neutrophibes, 33% Basophibes. Plaster jacket was applied, which gave some relief, although for a week morphia was required. Pain at first was on the right side of the back, later extended to the left side. At the end of about four weeks temperature became normal and the patient was up and about the ward, with very little pain. X-ray of the lumbar spine taken, which was negative. X-ray later taken of the lower dorsal spine showed lesions similar to Case 1.

The x-ray of these cases is the central point of interest. At the time the x-ray of Case 1 was taken the diagnosis was not made, and it was considered possible that there might be a tuberculous focus. When no gross lesion was found the x-ray was at first considered negative, until on more careful examination the so-called punched-out areas on the articular surfaces were noted. At this time more attention was paid to his typhoid fever history, and the Widal reaction taken. The correct diagnosis was made after recognizing the resemblance of the spinal bone lesion to those typhoidal lesions of the tibia.

The x-ray of Case I shows four distinct bone lesions, two situated on the upper surface of the second lumbar vertebrae, and two on the lower surface of the first lumbar. Each of them is about the same size, roughly speaking, the size of a lead pencil. They are circumscribed, rounded and show a distinct loss of bone substance, and resemble very closely the typhoidal lesions of other bones, both in shape and location.

The x-ray of Case 2 also shows four distinct lesions situated at the tenth and eleventh dorsal, with a similar punched-out loss of substance. The location of the lesions corresponds to the point of tenderness, at the border of the ribs. It is interesting to note that a kidney lesion was first sought for before his admission, and the diagnosis of typhoid spine was made on account of the extreme pain with spinal rigidity and was confirmed by the x-ray findings.

In studying the eleven reported cases which had x-rays taken, we find that two, Cutler and Peltesohn, reported no bone lesions. McRae's two cases showed deposits of new bone, or overgrowth; Myers and Silver each described the x-ray as a lack of intervertebral clearness; Cannon says there is distinct bony change; Lovett says there is a bony change; while Fichtner's case showed actual bone destruction.

It seems to me that if the process extends beyond the circumscribed bone abscess there would be an involvement of the intervertebral spaces, giving a lack of clearness in the x-ray, and there would be a deposit of new bone. Unless the x-ray is very clear and carefully focused it would be very easy to overlook such a process as is described in these cases, for we almost overlooked it in a good clear x-ray. We took several x-rays in the first place to confirm the original finding and to be sure it was not artifact.

If this is the true pathology for "typhoid spines" then it is easy to understand the whole clinical picture, the sudden onset, the intense pain, especially on any motion, the relief of pain on complete fixation especially in slight hyperextension, the duration of the condition, the low grade temperature and the ultimate recovery.

The so-called "typhoid spine" is an osteomyelitis of the vertebral bodies, which cause lesions similar to the typhoidal bone abscesses of other bones, located in the cortex just beneath the periosteum.

In Halpenny's article, Surgery, Gynecology, and Obstetrics, 1909, Vol. ix, pp. 649-657, the bibliography was given very completely, and there is appended the references in this article and the bibliography from 1909-1912.

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AUTOTHERAPY IN ACUTE ARTICULAR RHEUMATISM.

BY CHARLES H. DUNCAN, M.D., NEW YORK.

Patient, male, aged forty-eight years, was first seen on Nov. 1, 1912, suffering from mitral regurgitation. He was placed in bed and under the usual remedies gradually improved. On Dec. 27, he complained of pain in the right knee, which steadily grew worse until the 29th, when the writer was again called. At this time the knee was very much swollen, shiny, red and exquisitely painful; temperature, 101° F. The patient was restless and suffered intensely on the least motion. For some weeks previous he had been troubled with a slight bronchitis, which appeared to be aggravated at this time. The phlegm was thick and lumpy. Remembering that bronchitis not infrequently accompanies rheumatism, the question now arose whether the microorganisms causing rheumatism could be present in the sputum. Autotherapy of bronchitis having previously been so successful in the hands of the writer, it was decided to make a test in this case to learn whether the treatment of the bronchitis with the filtrate from the sputum would have any effect upon the rheumatism. Accordingly four c.c. of the thick sputum was placed in an ounce of water and allowed to stand for twenty-four hours, with occasional agitation, after which time it was filtered. At 8 o'clock, p.m., on Dec. 30, twenty minims of the filtrate were injected hypodermatically into the loose cellular tissue over the biceps muscle. On Jan. 1, at 8 o'clock, a.m., or thirty-six hours after the injection, the patient was walking about the room, moving his knee freely and smiling to show how much he had improved, although, as he said, he could still feel pain when he bumped it with his thumb. On Jan. 3, it was necessary for the patient to move the knee for several seconds in order to elicit the pain. He said, "I can feel it when I move it a certain way." Within twenty-four hours the arm was very much swollen around the site of injection. Within forty-eight hours the inflammation had extended to the wrist and the area was red, puffed

and tender, presenting the appearance of an extensive cellulitis. When told this was necessary for a cure, the patient's fears were allayed. Four days after the injection the cutaneous discoloration had practically disappeared, and on the fifth day all pain had ceased. The second night after the injection the patient slept well. As far as could be ascertained, the action of the heart was not disturbed. He was not seen until thirty-six hours after the first injection, at which time the temperature was normal and continued so. The patient will be given several smaller doses to learn whether any effect can be produced upon the cardiac valvular deposits.

While it is realized that one case usually means nothing, the definiteness of the object sought, the violent reaction and the speedy cure, agreeing as they do with the general rules already formulated by the writer in autotherapy of disease, it is believed this method of treating rheumatism should be thoroughly investigated. In considering this case of rheumatism, many important questions arise. One is: In how many diseases may the causative micro-organisms be obtained from the sputum? It has, as far as the writer knows, never been asserted that in a disease apparently as remote from the lungs as is rheumatism, the toxins may be obtained from the sputum. That in this case it was possible to obtain the toxins from the sputum is apparently evident. Is it not possible, yes even probable, that the micro-organisms are brought to the lungs with the inspired air and enter the respiratory tract at a point where the continuity of the mucosa is interrupted, or at some microscopic formina? May not the micro-organisms proliferate here, some being expelled with the sputum, others or their toxins passing into the circulation and reaching distant parts, thus producing constitutional disturbances, such as pain, increased temperature, etc? It is now quite generally recognized that some forms of the staphylococcus and streptococcus are the chief if not the essential micro-organisms or etiologic factors in rheumatism. In recent years it has been assumed that association of bronchitis and rheumatism is accidental. It would appear, however, that they are not disassociated but, on the contrary, are, as ancient writers affirmed, closely related or interdependent. Bronchitis usually is a premonitory symptom. The name "rheumatism" conveyed to the ancients the conception of a "rheum" or "rhea" or flow from the mucous membrane, owing to the fact that they observed the two conditions to be frequently associated. How often have we seen patients suffering with a toxic disease supposedly foreign to the lungs die from a pneumonia that developed quickly? All are familiar with this occurrence. The question that engages attention in this connection is that, had this bronchial condition been recognized early and the filtrate from the sputum containing the specific micro-organisms been therapeutically employed, might not the life of the patients have been spared? How far this simple therapeutic measure may be extended to other affections considered as disassociated from the respiratory tract can only be conjectured at present.

Heretofore the catarrhal condition often accompanying toxic diseases has been accounted for on the basis of impeded circulation. A question still to be answered is, How many acute, subacute, and chronic affections known or suspected to be toxic in nature are at times accompanied by catarrhal states of the respiratory and other tracts? Thought instinctively turns to some forms of psychopathic affections, acute and subacute endocarditis, nephritis, pancreatitis, pelvic and intestinal disorders. Is it not probable that occasionally we may be able in some of these diseases to obtain the products of the causative micro-organism from the sputum and successfully employ them in therapy?

To the large number of physicians who have addressed the writer for filters and instructions for application of autotherapy, it is suggested that the filtrate of the sputum be employed in treatment of many diseases. Diligent search for the discharges of the disease, by whatever route they are eliminated, is a main consideration; and these should be employed in therapy in the form of the filtrate. In acute conditions speedy relief may be expected, but in chronic conditions the treatment may have to be extended over a number of weeks or months. A diagnosis is often unnecessary as far as a cure is concerned.

Clinical Department.

TUBERCULOSIS OF MESENTERIC GLANDS SIMULATING GASTRIC ULCER.

BY MAURICE VÉJUX TYRODE, M.D., BOSTON.

THE articles of Dr. D. W. Parker and of Dr. F. B. Lund in the JOURNAL of Dec. 26, on "Tuberculosis of the Mesenteric Glands Simulating Appendicitis," called to my mind a case which I saw several years ago bearing upon an analogous condition.—

Case History. Patient was slight man of twenty-five years of age, rather pale and poorly developed. No previous illnesses except children's diseases and chancre two years ago, followed by an ulcer in throat seven months ago, which was then well. The present symptoms of indigestion had been troubling him for five or six years, and consisted of pain in the region of the epigastrium, going a little to the right side, with heartburn and eructation of sour fluid, the belching of much gas and great heaviness after eating. Physical examination revealed glands in axilla and groin but no mucous patches in the mouth, a moderate degree of anemia, a rather hard, flat abdomen containing no fluid, with a slight resistance and resistant mass in right upper quadrant, which was slightly sensitive. Stomach expression on a special supper and Ewald breakfast showed no retention, an excess of HCl, but no blood. There was no constipation.

The stomach symptoms antedated the syphilis by four years and it seemed probable to me that the

case was one of gastric ulcer. He was placed on antisyphilitic and ulcer treatment with great improvement. The resistant mass at the epigastrium did not change, and I interpreted it as the possible induration of a chronic ulcer.

After a faithful trial of medical treatment, although much improved, as he was not cured, it was proposed to the patient to have an exploratory laparotomy, which suggestion he accepted.

At the operation, performed by Dr. H. H. Germain, a rather surprising state of affairs was found. The stomach and duodenum showed no external evidence of ulceration; the gall-bladder contained no stones and the appendix did not appear diseased, but the entire mesentery was riddled with enlarged glands, varying from the size of a pea to that of a walnut. A particularly large accumulation was present at the place where indefinite resistance was felt. Most of the glands were hard, but some were soft and cheesy. There was no peritonitis, nor adhesions nor fluid, the process being absolutely limited to the glands. The surgeon removed a large gland before sewing up. This gland was examined by Dr. Timothy Leary and reported as undoubtedly tuberculous.

After the exploration the patient was placed on the general treatment of tuberculosis, *i.e.* much outdoors, forced feeding and tonics. He gained about ten pounds in weight and ceased to complain of the pain, but still was troubled by the heartburn for some time.

When I heard of him some years later, he was said to feel entirely well, so it is probable that generalization did not occur.

Medical Progress.

REPORT ON MENTAL DISEASES.

(*Continued from page 314.*)

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

THE SIGNIFICANCE OF WASSERMANN REACTION FOR PSYCHIATRY.—ALZHEIMER'S DISEASE.—OSTEOMALACIA AND INSANITY.—THE MEDICO-LEGAL RELATIONSHIPS OF GENERAL PARALYSIS.—PSYCHO-ANALYSIS.

THE SIGNIFICANCE OF WASSERMANN REACTION FOR PSYCHIATRY.

ACCORDING to Plaut's[1] results, the Wassermann is positive in the blood and fluid in most cases of paresis. Of his own 276 cases, in nine only the cerebrospinal fluid was negative, and one serum showed no complement deviation. He does not agree with the French observers that in the early stages of general paralysis Wassermann reaction is of no assistance for diagnostic purposes, and that in the beginning of this disease the blood is usually positive and the fluid negative; that later both the serum and blood become positive and that in the last stages the serum only is negative. Many observations tend to show that a weak complement deviation suggests remission or a stationary course of the disease. The parallelism between the Wassermann reaction and lymphocytosis, and globulin content, does not exist according to many investigators. Mercury and potassium iodide exert no influence on the Wassermann reaction in general paralysis. Salvarsan, as Alt demonstrated, can make the reaction disappear from the blood, and Plaut observed that cerebrospinal fluid gave a weaker reaction. In cerebral syphilis the serum is usually positive and the cerebrospinal fluid negative. Of 37 cases in 4 the fluid was only slightly positive. In borderline cases where the diagnosis lies between general paralysis and cerebral syphilis, the Wassermann test is of relative value, but great caution should be exercised in interpreting results. A marked positive reaction of the fluid argues in behalf of general paralysis, and negative fluid reaction does not necessarily rule out general paralysis, for there are cases on record in which the fluid is negative. If both the fluid and serum are negative, cerebrospinal syphilis may be thought of. However, in such a case, the syphilitic nature of the disease may be questioned. In the literature, the 400 recorded sera and 127 cerebrospinal fluids showed 71 per cent. and 59 per cent. respectively, a positive reaction. Nonne and Holzmann's 93 cases of tabes gave a positive reaction in 9 per cent. of the cerebrospinal fluid and 67 per cent. of the blood tests. Studies of the Wassermann test in the feebleminded were made, and Raviart, Breton and Petit found a positive Wassermann reaction in 48 out of 158 idiotic children; Kellner, Clemenz, Bruckner and Rauttenberg's 216 cases showed only on 13 a positive serum reaction; and Lippman in Daldorf and Unchtspringe demonstrated 13.2 per cent. and 9 per cent. respectively, complement deviation in his cases of the feebleminded. The author examined 54 paretic families with 100 children; only 39 per cent. were free from syphilis. Possibly this is due to the fact that at the time of the examination lues was in the latent form.

Kaplan's[2] comparative tables show that even in paresis the positive Wassermann reaction may at times be wanting in either the serum or fluid or both. As such negative general paresis cases were observed by him, he found it necessary to mention this fact. The causes for such findings must be ascribed in part to the method and technique he employed as well as the extreme caution in rendering positive Wassermann reaction reports and in part to the actual negative conditions that at times are really present in general paresis. He has records of sera and fluids where the report was negative upon four separate analyses. In experimental serology of the above nature, the only control for the obtaining of correct data is to keep the serologist in ignorance of the clinical facts. Those who are accustomed to work with this very complex reaction know how easily mistakes can be made and reported.

Another peculiarity of general paresis is its

stubbornness in retaining the positive Wassermann reaction after treatment, which is a feature worth remembering, when such a result is obtained in a thoroughly treated individual who presents inconclusive evidence suggestive of general paralysis. There are cases of general paralysis where no inhibition is obtained with the serum and others where the spinal fluid may prove to be negative. In his experience a few cases of general paresis were as negative as normal sera and fluids. These discouraging facts may not minimize the value of the test, which being a laboratory report should only be collated with the findings at the bedside. The clinician upon a closer investigation may either accept or reject the laboratory verdict. In case of a negative Wassermann report its value for diagnosis in only about 25 per cent. of the entire ensemble of facts necessary for establishing lues; the clinician has the history, very often finds symptoms more or less classic, and frequently the result of therapy aids him in establishing lues. These three corroborative data outweigh the laboratory findings three to one.

ALZHEIMER'S DISEASE.

Fuller[3] has collected all the recorded cases of this disease including one of his own—thirteen in all—and summarizes their clinical histories thus: About middle life or slightly past, with one exception in early adult life beginning at the age of 32, memory defect, disturbance of retention and general mental weakness set in and progress to a marked dementia. The progress of the dementia in some of the cases has been slow, in others fairly rapid. As a rule, early in the course of the affection aphasic disturbances—verbal amnesia, occasional paraphasia and jargon, impairment of ability to comprehend spoken language, graphic disturbances, verbal and literal preservation—ideational apraxias and agnosias develop, varying from time to time in severity but never as intense or consistent as the speech disturbances and apraxias originating from coarse focal lesions of the brain. Mental confusion, with some delirium, lack of bladder and rectal control without evidence of limb paralysis, good preservation of gross muscular strength, considerable motor activity and restlessness have been striking features of the majority of the cases. Auditory and visual hallucinations with apprehensive delusions based upon them and spatial as well as temporal disorientation have been prominent in some instances. With one exception luetic infection does not appear in the anamneses. Alcoholic indulgence seems to have played no rôle or at the most a minor one. Cerebral atrophy was noted macroscopically in most of the cases. In only two cases was there instance of appreciable cerebral arteriosclerosis. The microscopical examinations of the brains revealed a large number of miliary plaques in all of the cases save one. The plaques were more numerous and frequently of greater size than those usually found in other brains exhibiting these structures. In one case they were of enormous proportions, a single plaque extending in many instances through one or more cortical laminae. In one no plaques were found. We consider it is reasonable to assume that this type of case, while not in every instance free from sclerotic vascular alterations of the brain, is not a type of mental disease resulting from arteriosclerosis. In a certain sense a precocious senium is conceivable; by this something quite different from an early arteriosclerosis is meant. He in an earlier paper had argued that arteriosclerosis *per se* had little or no causative relationship to the formation of miliary plaques of the brain so characteristic in the microscopical findings of the type of case here considered and jn many cases of typical senile dementia, although many brains of the latter class showing plaques also exhibit considerable arteriosclerosis. On the other hand, plaques may be wanting in the brains exhibiting the maximum of arteriosclerosis, particularly in cases recognized clinically as arteriosclerotic insanity and post-apopletic dementia. In all cases of Alzheimer's disease reported, with one exception, plaques have been found in great number, but only two of the cases have shown macroscopically any appreciable arteriosclerosis.

OSTEOMALACIA AND INSANITY.

Charpentier and Jabonille[4], after an exhaustive consideration of the literature bearing on the subject of the tendency to fracture in insane cases, conclude, in a critical review, that (1) fractures do not occur with greater frequency in the insane; (2) in many cases so-called spontaneous fractures have been due to other causes than mental alienation; (3) the idea of osteomalacia in the insane ought not, however, to be summarily rejected, for some undeniable cases have been recorded.

THE MEDICO-LEGAL RELATIONSHIPS OF GENERAL PARALYSIS.

Savage[5] shows how apt general paralysis is to bring the individual into conflict with society, or to give rise to medico-legal problems in any of its stages, but particularly in the first or prodromal stage. The loss of higher control in this stage, so that the actions following feeling rather than reason, lead to impulsive actions, varying with the individual; but as examples, there may be cited violent language, brutal assaults, sexual faults of various kinds, and senseless acquisitiveness of articles for which the individual has no real want. Assaults may be made partly under the influence of drink, but they are always impulsive rather than premeditated. In cases of indecent exposure or assault perpetrated by men of middle age, one should always be on the outlook for the physical signs of general paralysis. Senseless theft or reckless speculation, and ordering of goods, etc., is very typical

of the exalted stage of general paralysis, and is liable to lead to legal proceedings.

Of the question of general paralysis being produced by injury, the view taken by the writer is that while general paralysis probably cannot arise without previous syphilis, yet some other factor is necessary to start it off, and an accident may be this other factor. With regard to testamentary capacity, in the majority of cases it is improbable that a general paralytic will make a sound will, but it must be admitted that in the early stages there may quite well be periods of sanity or lucid intervals, in which a perfectly valid will may be made. It must, of course, be remembered that the mere fact of being a general paralytic or insane is not any proof that the individual has not "a sound and disposing mind" in the eyes of the law.

PSYCHO-ANALYSIS.

Jones[5] in explaining the therapeutic action of psycho-analysis, believes that it effects its cures by making the patient aware of the unconscious complexes that lie at the basis of his symptoms, thus enabling the pathogenic agents to become assimilated in consciousness. It achieves this by discovering and surmounting the internal resistances that are the cause of repression, and which constitute the obstruction, preventing the patient from becoming aware of and assimilating the pathogenic mental processes. As, further, it does not confine itself to the unconscious symptoms, but deals equally with the whole of the repressed material in the patient's mind, its action extends beyond the field of purely medical indications and gives the patient an inner control and self-insight that is not only the best guarantee against any tendency there may be to relapse into a neurotic state, but also the soundest basis for the guidance of his life in the future.

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Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE TWENTY-NINTH ANNUAL MEETING WAS HELD AT THE HUNT MEMORIAL BUILDING, HARTFORD, CONN., ON JUNE 10, 11, 12, 1912.

The President, DR. ALEXANDER D. BLACKADER, of Montreal, made the opening address on

THE ADVANTAGE OF RESIDENCE IN A COLD, DRY CLIMATE IN THE TREATMENT OF SOME FORMS OF DISEASE.

It was shown that the stimulating and health-giving properties of the steadily severe but dry cold of Northern Canada, especially the Laurentian plateau, confers a vigor not to be found elsewhere. Sleep is favored when the body is properly protected; the appetite is stimulated and digestion is better; oxidation is increased. Those who suffer from any interference with the free passage of air through the nostrils do not react well to cold and gain little benefit in winter. In inflammatory conditions of the larynx and trachea cold air may act as an irritant and prove harmful. Extreme cold is not desirable for cases of gout, arthritis or neuritis. For those suffering from advanced degeneration in any organ, for those advanced in years, or for the very young, extreme cold may be distinctly harmful. At St. Agathe, P. Q., the consumptives show a rapid and permanent gain in weight in cold weather; night sweats become infrequent, the amount of hemoglobin rapidly rises; cough and dyspnoea disappear.

PROFESSOR YANDELL HENDERSON, New Haven, Conn., made an address on

PHYSIOLOGICAL OBSERVATIONS ON PIKE'S PEAK, COLORADO, MADE IN THE SUMMER OF 1911.

He said that his interest in the physiological effect of the climate of mountains started in the sport of mountaineering rather than in medicine. It was a widely believed fallacy that with a low atmospheric pressure one was subject to severe hemorrhages. One writer in the last century said that when crossing the Andes the mules breathe hard, their lips bulge, their eyes burst. This notion that with a low barometric pressure one got severe hemorrhages was based upon a false idea. Many hundred of people go daily to Pike's Peak and ordinary nose blood is no more common there than occurred among people who took vigorous exercise at sea level. The only cases that he saw of nose bleed were when there was the impact of something against the nose to make it bleed.

A careful study of the arterial blood pressure was made on many on the Peak, and there was found a slight fall in the arterial blood pressure. Those who were mountain sick presented a somewhat different condition, but this was another matter. They often gave symptoms of ordinary fainting spells, weak pulse and other symptoms that went with a cerebral anemia.

In the seventies of the last century Paul Bert showed that the hemoglobin contained in the red blood cells was increased and that the ill effects of a low barometric pressure were due to a lack of oxygen. Some experiments were carried out in steel cylinders from which the air was pumped and it was found that in pure oxygen patients were comfortable at one-fifth air pressure as when they were breathing the normal atmospheric air with one-fifth oxygen and four-fifths nitrogen.

Recently he made some observations in New Haven. He got a large boiler and breathed into it until the oxygen was greatly reduced. When below 10 per cent. he suffered from nystagmus, panting, and almost went into convulsions. There was no great difficulty, in his opinion, in making these studies on artificial mountain sickness at the sea level. It was only a question of oxygen.

Any decrease in the amount of carbon dioxide in the blood in the lungs did not occur under low pressure. Zuntz got many results from his investigations, but he was unable to throw much light upon the cause of the condition. Since Paul Bert not

much progress had been made in this study. A year and a half ago while in Vienna he met with Haldane and Douglas. They made inquiries where they could find a comfortable mountain on which to make investigations and where they would not have to suffer many hardships. They did not wish to do anything heroic and had thought of the Andes or the Himalayas. They finally decided to go to Pike's Peak, Colorado, altitude 14,147 feet.

At Pike's Peak they had a lot of apparatus and especially apparatus for determining the alveolar contents of the lungs; also the respiratory exchange during exercise, the amplitude of respiration, etc. A point of special interest was to find out the volume of blood in the body.

Another point for investigation was the determination of the possible activity of the lungs at this altitude. One of the problems they wished especially to study was the difficult question as to whether the lungs possessed any active process of secretion, that was, whether the blood in passing through the lungs contained more oxygen than mere diffusion would provide.

After being four or five days at Colorado Springs they had four trains to take them and all the apparatus to the top of Pike's Peak. After being one hour and a half on top they noticed that their lips were blue and towards evening they began to suffer about the temples. They had headaches. When supper time came they had no appetites. Of course they ate no supper. Their lips were still blue. They were nauseated. They felt like lying down. All this compared in a way to the symptoms caused by seasickness,—the nausea, the distress about the temples, the frontal headache which was splitting in character, the marked dilatation of the temporal vessels, conditions which pointed to some vascular reaction and which lasted for four or five days. The railway carries about 200 people up to Pike's Peak every day in summer; they stay about an hour; of that number twenty or thirty were slightly affected by the altitude. Most of them had nausea and a great deal of headache. Some went into a dead faint when they reached the top. If they tried to climb, they again fainted and then they would take a train and go down. Some would stay over until the next morning, get up at sun-rise, and then vomit; this would occur usually between two and four the next morning. These people would go down the next morning and then be all right.

There was another set of people who would come up on donkeys.

He had seen the floor of the lunch room covered with people, vomiting, some practically unconscious; others who could not take any food. At sunrise, however, they would get up and some would fall in a faint. He recalled one case in particluar, an individual scarcely off the train, when the lips became blue, with regurgitation of food and other ill effects of the high altitude. He was given oxygen and the lips soon became pink and the individual felt nicely. However, within ten minutes he grabbed a bag of oxygen as if it were a whiskey bottle and ran for his train.

Low air pressure and this lack of oxygen affected people in extraordinary ways; the majority of them were out of their heads. He reported several instances of this crazy behavior.

One of the things noticed at Pike's Peak was that most of those who went up were short-winded and many of them had Cheyne-Stoke's respiration.

Another thing noted was the effect of exercise on the wind. The least work undergone made people out of breath. This was often followed by apnea. Some experienced terrific spells of dyspnea and then second wind. After running fifty yards up-hill the legs would wobble. This occurred in one individual in particular and it became necessary to administer oxygen.

The problems they wished to study were those related to acclimatization; how could these people live at these high altitudes and be comfortable?

The red blood cells were increased from five up to seven and a half million. The hemoglobin from 100 to 145 per cent. or even higher after six months' residence. The percentage of hemoglobin does not remain high after one comes down. Last summer Dr. Henderson had a hemoglobin percentage himself of from 135 to 140. Now it is normal again. The percentage of lymphocytes was increased.

The most important element of acclimatization to low barometric pressure was the development by the lungs of a capacity to secrete oxygen from the alveolar air into the blood, thus compensating in part for lessened diffusion because of the low oxygen pressure in the atmosphere.

The heart rate is somewhat accelerated even during rest, and greatly accelerated by exercise, but the arterial pressure was not considerably changed. As stated, the hemorrhages formerly noted are a myth. Respiration is considerably increased even during rest and enormously augmented by even moderate exercise. The red corpuscles are increased 30 per cent. or 40 per cent.; the total volume of blood, however, was unchanged. The CO method was the one used.

They found what they believed to be clear evidence of pulmonary secretion of oxygen. On Pike's Peak more oxygen was in the blood than in the air. They think they can prove that much of it was secreted from the alveolar air into the blood. They think that the development of this capacity on the part of the lungs to secrete oxygen from the alveolar air into the blood is an important factor in acclimatization. Thus in a new-comer on Pike's Peak the lips are blue, but a day or two later they assume a good color.

Dr. W. A. Campbell, of Colorado Springs read a paper on

HIGH ALTITUDE AND THE BLOOD.

The study of the blood at high altitudes is obviously difficult owing to changed climatic conditions and inaccessibility. Altitude increases the erythrocytes, hemoglobin, and leucocytes, thus favoring resistance. The heart acts faster and the pressure is lower, which tends to strengthen the cardiac muscles just as exercise of the general system strengthens the individual as a whole. Caution is needed at the beginning. The lack of oxygen and the consequent increased respiratory exchange increases metabolism and develops the chest. Dr. Campbell cited the case of a man who came to Colorado Springs in 1905 from a low altitude in the East. His chest measurement over the fourth rib was 37 inches; in 1909 his apices were expanding and the measurement was 38 inches; in 1912 he measures 39 inches with no evidences of limited respiratory sounds.

Dr. Campbell considered the experiments of Henderson and Haldane on Pike's Peak important in showing that the adaptation to high altitude is mainly accomplished through the "increased secretory activity of the alveolar epithelium."

DISCUSSION.

DR. HOAGLAND, of Colorado Springs, thought there was a wrong impression in the United States with regard to the mortality from pneumonia among those who lived at high altitudes. In his first case of pneumonia he did not know whether to send the patient lower down or send for an undertaker. To his surprise the patient recovered. In order to make comparisons of the mortality from pneumonia he collected statistics from hospitals situated at high altitudes, as in Denver, Cripple Creek, and Leadville and compared those statistics with those of the Massachusetts General Hospital and the Philadelphia Hospital and he found the mortality was no higher. On the Peak many had attacks of insomnia.

As Dr. Campbell had pointed out, there was an increase in the capacity of the chest when one went to higher altitudes.

DR. ROBERT H. BABCOCK, Chicago, Ill., said he did not know anything positive about the effect of altitude in cases of heart disease. When a patient with or without heart disease asked him about the effects in his case of an altitude of 6000 or 8000 feet, he could not positively answer. He knew patients with valvular heart disease at Leadville, Colorado, and other places of high altitude, and they experienced no ill effects. When he is asked by a cardiopath, "Will it be safe for me to go to Colorado?" Dr. Babcock usually answers "Yes, if you keep quiet until you become accustomed to the altitude." Dyspnea and tachycardia are the indications for absolute rest and after a few days one is likely to become accustomed to the altitude, but if not he should not remain.

PROFESSOR YANDELL HENDERSON said in answer to Dr. Edson's question about bilateral headaches being due to sinus trouble, he did not think so. It happened that the blood vessels or arteries were congested on one side and not on the other.

The critical line was about 6,000 to 10,000 feet. At 9000 feet oxygen secretion was not necessary. It appeared to be clear that at Colorado Springs there would be no more secretion of oxygen to aerate the blood than at sea level. But in going up Pike's Peak secretion of oxygen would occur. He reported the case of a college boy who was unduly affected. He had bilateral headaches, became blue and was generally miserable. It was found that he was not secreting enough oxygen. Two or three days later he began to secrete oxygen to his immense relief. At Cripple Creek oxygen secretion was necessary to keep from being mountain sick.

He said the discrepancy regarding the respiratory exchange was only apparent and not real. No more CO_2 was gotten rid of at high altitudes than below nor was the intake of oxygen greater; but in getting rid of it the patient breathed harder. To get rid of 25 cc. CO_2 instead of breathing 500 cc. tidal air it required 700 cc. tidal air.

Similar observations had been made by Professor Bingham who climbed 6000 or 7000 feet higher than Pike's Peak, taking him six or seven days to go up. He would walk 20 steps and then lie down 20 minutes. He managed to get to the top. He said the highest altitude ever reached was by the Duke of the Abruzzi in the Himalayas, 24,000 feet. While there a snow-storm came on and he had to come down.

DR. DELANCEY ROCHESTER, of Buffalo, read a paper on

CLIMATOLOGY AS PRACTISED BY HIPPOCRATES.

There were many Asclepia or Temples of Health in Greece and they were usually erected near some medicinal spring. Those at Cnidos and Cos were especially noted. Hippocrates began his practice in the Asclepion of Cos and he was the first who wrote on health and disease; his "Airs, Waters and Places" suggests climatology. He deals with seasons, winds, qualities of waters with particular detail. He shows the effect of climate on the constitution and mental character. He showed the value of bathing and laid down directions for bathing in pneumonia, claiming that it promotes expectoration, improves the respiration and allays lassitude. One of his aphorisms was: "The physician should strive to do good to his patient or, at least, to do no harm."

DR. JAMES M. ANDERS, of Philadelphia, read a paper on

CLIMATOLOGY IN THE CURRICULUM OF THE MEDICAL SCHOOLS OF THE UNITED STATES AND CANADA.

In 1904, the late Dr. S. E. Solly called the attention of this society to the question of the establishment of systematic teaching of climatology in the medical schools; he mailed a circular to all the medical colleges, to which thirty answers were received. Of these, only seven stated that climatology was included in the curriculum, questions were set, and books were recommended. "The rest of the colleges said there was no regular instruction, but that the different professors, sometimes the professor of medicine, sometimes of therapeutics, sometimes of diseases of the lungs, referred to the matter of climate in connection with the various diseases which they discussed."

Following the example of Dr. Solly, I mailed a circular, but slightly different from his as regards the questions propounded, to all American Medical Colleges—147 in number—with a view to ascertaining to what extent the movement then proposed and started to advance the teaching of the science of climatology had succeeded during the intervening period of nine years.

In the present collective investigations, 19 colleges out of a total of 76 from which responses were obtained, are including climatology in the curriculum as against seven out of a total of 30 answers received in 1904. In 16 institutions, questions are set either in the junior or senior years. No regular instruction is given in climatology, but it is incidentally taught by different professors, in 40 of the 76 medical colleges and universities. The need of more general and uniform teaching of this branch in the medical schools of America was discussed.

DISCUSSION.

DR. GUY HINSDALE, Hot Springs, Va., said that there was no more proper field for the Association than to promote the teaching of climatology in medical colleges. It was wonderful how students became interested in the collateral branches of this kind when their attention was called to them. In his lectures in Philadelphia Dr. Hinsdale obtained much aid from the use of lantern slides which were furnished him by the University of Chicago which has had made a large series of slides and has published a complete descriptive catalogue from which a selection could be made. At Tufts Medical Col-

lege Dr. Otis uses a similar collection of slides showing meteorological features, particularly conditions of temperature, barometric pressure, humidity and rainfall throughout the country. The slides were very carefully prepared.

Dr. Hinsdale made it a practice to have some lectures printed from year to year and so was able to hand to students printed lectures; this saved the necessity of repeating some lecture. He found that the United States Marine Hospital Service published valuable reprints of papers written by surgeons in various parts of the world on climatic treatment of tuberculosis, the occurrence of hemorrhages at high altitudes, and so forth, and these were furnished by the Government and distributed to the students. That stimulated their interest in this special field of work. It was very helpful both to the student and teacher.

Dr. Hinsdale thought that the American Climatological Association should take this matter up and try to stimulate the teaching of climatology. Recommendations should be made as to how the lectures should be arranged so that the teachers could follow systematic lines.

Dr. Carroll E. Edson, Denver, Colo., said he had had some experience in trying to teach students climatology and he believed that the giving of but four lectures was inadequate except to lay the foundation for further study. One could not give the student a clear idea of how climate affected the physical economy, heat production, and so forth in four lectures when they started in the study without knowing anything about weather observations or the elements of meteorology. In large schools where a preliminary training and education were required in physiology, the students did know the things necessary for the study of climatology.

Dr. Edson thought that such a course of study as was suggested by Dr. Anders, backed by the American Climatological Association, would be of the greatest advantage.

Dr. Anders felt that if the third year or junior student were given a brief course in the elements of meteorology he would have something on which to base the selection of a suitable climate in various diseased conditions. The latter aspect of the subject should be brought to their attention during the senior year. Medical schools could not expect to do more than to give a mere outline of the science of meteorology. The present curriculum would not permit any extended course. However, a lecturer who was qualified could present sufficient data in four or five lectures to lay the foundation for future practical work. The fact that our knowledge of the science of meteorology and of climatology was not advanced was not a good reason why no effort should be made to give medical students that nucleus or slight foundation on which they could subsequently build.

(*To be continued.*)

Book Reviews.

A Manual of Auscultation and Percussion, Embracing the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurysm, and of Other Parts. By Austin Flint, M.D., LL.D., Late Professor of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, etc., New York. Revised by Haven Emerson, A.M., M.D., Associate in Physiology and in Medicine, College of Physicians and Surgeons, Columbia University, New York. 12mo, 361 pages, illustrated. Philadelphia and New York: Lea and Febiger. 1912.

It is a source of distinct satisfaction to have Flint's work again made available for common use. As a concise but complete description of the subject it has never been surpassed. In it one recognizes the original authority for the teachings of one's teachers, some of which are not covered by the text-books now most commonly employed. Being based chiefly upon personal observations interpreted through a remarkable understanding of the fundamental principles involved, the work has a force of conviction largely lacking in the newer works in which the common physical signs have lost their novelty. The revisions by Emerson have been inserted with excellent judgment and in the same concise style as the original descriptions. To such a degree do they blend with the original text that one is startled at times when reading with the attention tuned to hear a voice from a past generation, to come suddenly upon such modern matters as the revelation of the x-ray. The recent teachings as to heart irregularities are included in such a way that the student can obtain an elementary knowledge of them without confusing detail. In a word, the work can be highly recommended for the purpose for which it is intended, namely, as an elementary text-book of physical diagnosis.

Pathology. A Manual for Teachers and Students. By W. T. Councilman, M.D., Boston: W. M. Leonard. 1912.

This book covers the scope of the course in General Pathology which is given in the Harvard Medical School, and is evidently offered with the expectation that it will be found useful in other medical schools. It should find a place in the teaching of pathology elsewhere than in Boston. The work is not a systematic text-book. The subject matter is presented in the well-known vigorous and condensed style of Professor Councilman. It represents the opinions held by him and his colleagues in the fields covered. Other authorities are not cited by name, nor references given. Illustrations, as is stated in the preface, have been purposely omitted. As aids to instruction there are included pertinent autopsy protocols and experiments upon animals, thus presenting an elaborate and well-balanced course in pathology, calculated to correlate knowledge gained from the numerous lines of research into which the great field of pathology has been divided.

The book is abundantly interleaved with blank pages, and is supplied with additional blank index sheets, so that the student may add his own sketches and observations.

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PENDING DENTAL LEGISLATION.

AN important legislative measure now under consideration before the General Court of Massachusetts is the so-called dental nurse bill (House No. 1156). This bill, first introduced last year on petition of Dr. George H. Payne, through a joint committee from the chartered dental societies and in behalf of the Massachusetts Dental Society, makes in essence the following provisions:—

"SECTION 1. Any person who is twenty years of age or over and in the opinion of the Board of good moral character, upon payment of a fee of five dollars, which shall not be returned to him, shall upon application be examined by the Board of Registration in Dentistry, and if found competent, be licensed by said Board to perform as a dental nurse the services specified in section two hereof.

"SECTION 2. A registered dental nurse shall be licensed to perform only such duties as shall be specified in his license and solely under the direction and in the office of a registered dentist. Nurses may be employed by schools and institutions; and directions for all their work shall be given by a registered dentist. The dental nurse shall be licensed to perform the service of cleansing of teeth.

"SECTION 3. Each licensed dental nurse must notify the Board of the name and address of the dentist or institution by whom he is employed.

"SECTION 4. (Provides for annulling the registration of any nurse found guilty of crime or of violating any provision of the act.)

"SECTION 5. The Board shall have power to register in like manner, without examination, any person who has been registered as a dental nurse in another state under laws which in the opinion of the Board maintain a standard substantially equivalent to that of this Act.

"SECTION 6. Whoever, not being licensed to practice as a registered dental nurse within this Commonwealth, practices or attempts to practice as a registered dental nurse, shall for each offence be punished by a fine of not more than one hundred dollars. Whoever becomes registered or attempts to become registered as a dental nurse, or whoever practices or attempts to practice as such under a false or assumed name, shall for each offence be punished by a fine of not more than one hundred dollars, or by imprisonment for three months, or by both such fine and imprisonment. Any dentist who employs a non-registered person to do work specified in Section 2 hereof shall be fined one hundred dollars for each offence. Any registered dental nurse who violates the dental law by performing operations not allowed by the provisions of Section 2 of this Act shall be fined one hundred dollars for each offence, and the dentist, in whose employ and with whose knowledge and consent the nurse so violates the law, shall also be fined one hundred dollars for each offense."

This measure, as it stands, is approved by the Massachusetts Dental Society. The arguments in its favor have been summed up as follows by Dr. Payne, its proponent:—

"The dental nurse bill, or House bill 1156, approved by the joint committee of the Dental Societies, is intended to amend the present dental law, thereby allowing a trained assistant to cleanse the teeth of the people of this commonwealth, if they so desire."

"It provides for the examination of persons, properly qualified, by the State Board of Registration in Dentistry, who, if found competent, shall be licensed to perform only the services of cleansing the teeth in the office of, or in schools and institutions under the direction of, a registered dentist, with a severe penalty for the violation of the terms of the license.

"Connecticut has a dental law which allows dental nurses or assistants to cleanse teeth, and the result of their work has, during a period of six years, prevented 80 per cent. of decay, with a consequent reduction of 40 per cent. in the expense to the patients. I quote from the official report by Dr. A. C. Fones of Bridgeport, Ct. From the report of Connecticut state authorities, this part of the dental law there, governing the dental assistant, has not been violated."

In further discussion of the measure, Dr. Payne is reported to have said in part:—

"A mouth with decayed teeth is the best possible incubator for the germs of all contagious diseases; it containing the four essential requisites, heat, darkness, moisture and pabulum. The first three cannot be removed, but by the frequent and thorough cleansing of the teeth and mouth the fourth can be eliminated, thereby preventing the multiplication of germs causing practically all infectious diseases.

"Boards of health, school authorities and institutions are waiting the advent of the dental

nurse to solve the problem of saving the teeth of the vast army of children, which up to the present time have been sadly neglected.

"Cities and towns will save thousands of dollars, which are now being spent annually for the reëducation of school children, made necessary by inability to be promoted in their classes on account of non-attendance caused by the deplorable condition of their mouths. There is a class of people of moderate means who cannot afford to pay the dentist for the necessary frequent cleansing of teeth, but who will gladly pay and can afford to pay the small fee for the services of the dental nurse. The people who are now receiving the systematic treatment and benefits of oral hygiene are indorsing and demanding the passage of this bill, so that all may receive this necessary service at a minimum expense or in schools and dispensaries free."

On the other hand, the proposed bill has provoked extensive opposition, led by the Massachusetts State Board of Registration in Dentistry. In its recently published twenty-sixth annual report the bill is described as "an attempt to create a new species of dentist to be known as a dental nurse."

"'Dental nurse' is a misnomer. Cleansing, wedging and examination of the teeth, the treatment of Rigg's disease, and the use of dental instruments, as this proposed legislation would give to dental nurses, is not nursing at all, but practicing dentistry, requiring sometimes the utmost skill of the trained and conscientious dentist. A nurse has no place in the dental office as she has in the sick room or hospital. Attendants, good dentists very properly have, but nurses as such are not needed and are unknown. Obviously, such a law would be simply subjecting the public to the cheap, unskilful workmanship and quackery that formerly disgraced the profession in Massachusetts, the prevention of which was, and still is, the very purpose of our dental law."

Further, the president of the Board of Registration in Dentistry, Dr. John F. Dowsley, issued to the daily press the following statement of the Board's position:—

"The passage of the dental nurse bill is likely to meet with opposition, according to a canvass made among dentists during the past week. Return postal cards issued by prominent Boston dentists who are opposed to the bill, have been mailed all over the state, and the number of cards returned leaves no doubt but that the opposition is very general. There are over three thousand registered dentists in the state. Of these, according to Polk's Dental Directory, about 2200 are engaged in active practice. The others have retired, left the state, or are occupied with other lines of work. Close to 1400 have signed the opposition to the bill, and many more have signified their intention of doing so before the date of the hearing. The bill is not a new one. It has been before the Legislature three times and was opposed by the State Board.

"The broad license given the so-called nurse by adherents of the bill is denounced by those of the opposition as a positive menace to the safety of the public.

"The duties referred to could, at the will of employer or 'nurse,' cover all the administrations of the registered dentist, with the exception of the purely mechanical operation, such as the filling of teeth, making plates, setting crowns, bridges, etc. The 'nurse' would have free access to all instruments in the dentist's office, and might treat the most painful and serious diseases of the teeth and adjacent parts. In the opinion of the Board, none but those trained and educated to the present standard of the Massachusetts requirements should be permitted to use in the human mouth the dental engine, an instrument frequently used to clean the teeth, and one which would accordingly be at the command of the dental nurse."

A reply to these objections has been made by Dr. R. Ottolengui, of New York, in a recent address:—

"The introduction of this measure is not 'an attempt to create a new kind of dentist.' If so, the purposes of those that have introduced this measure would be beneath contempt. A dental nurse, properly described, properly educated, and properly legalized, would no more be a 'kind of dentist' than is the 'medical nurse' a 'kind of doctor.' She is not even granted the privileges of 'assisting a registered dentist during the performance of his dental operations,' work, by the way, which is done by thousands of unregistered girls in dental offices all over the country. The duties of the nurse are described in the single sentence (Section 2 of the Act), 'The dental nurse shall be licensed to perform the service of cleansing teeth.'

"If every dentist in the city of Boston should give his office and his time entirely to the treatment of the public school children in Boston for one year, at the end of that time this tremendous force of skilled practitioners would not have finished even filling the cavities, and if they had succeeded in cleansing each child's teeth once in that year it would have been a marvelous accomplishment.

"The unclean mouth is the breeding place, if not the birthplace, of half the ills from which the body suffers. But in dental clinics, and in the private office, the demand for repair work is so great that there is not time for prophylaxis. One child with toothache will always demand more prompt attention than 100 children with unclean mouths. Yet, from the community standpoint, that toothache is a minor evil. The dental profession, as a profession, never did this cleansing work, is not doing it, never will do it.

In those offices where it is done, it is done by trained dental nurses.

"The objects of those who advocate this bill are first, to extend to the community a service at present offered by less than one-half of one per cent. of the dental profession; second, to safeguard the public by regulating the qualifications that shall entitle the dental nurse to do her work; third, by legalizing and regulating these qualifications to inspire the foundation of proper training schools for dental nurses, thus removing the training from the hands of innumerable individual dentists and thus increasing her efficiency."

Obviously, the question is one upon both sides of which much may be said and has been said. The situation is to a certain extent complicated by the simultaneous presence before the Legislature of the Patten bill, a measure supported by the legislative committee of the Massachusetts Dental Society and providing for the appointment of a board of dental examiners. It requires "that persons shall have a degree from a regularly chartered dental college in order to be eligible for registration as a dentist in this state, and that all dentists shall be annually registered. Further, that the governor shall appoint members of the Board of Dental Examiners from a list of twenty names submitted annually to the governor by the Massachusetts Dental Society, and that practicing dentists properly registered in other States shall be allowed to register in this state without examination."

This bill is also favored by Dr. Eugene H. Smith, dean of the Harvard Dental School. It is opposed by the Commonwealth Dental Association, and others, on the ground "that the Patten bill will wipe off the statute books practically the entire law relating to dentistry. The most pernicious feature of the bill is the section that takes away from the governor the right to appoint the members of the examining board and vests this power in the Massachusetts Dental Society."

It may be surmised that the Patten bill is in part responsible for the opposition of the Board of Registration in Dentistry to the dental nurse bill. It is unfortunate that the issue is thus complicated, for like all issues, it ought to be settled on its own merits. Whatever the legislative conclusion now reached, it is evident that the question is one of complexity and importance, and as such it deserves earnest consideration and discussion in order that it may be settled for the best interests, not of any class or group, but of the entire community.

THE MAINTENANCE OF ISOLATION HOSPITALS.

In the recently published monthly bulletin of the Massachusetts State Board of Health for December, 1912, is a summary, by Dr. William C. Hanson, of the provisions made in cities and towns in this state for "the maintenance of isolation hospitals for the reception of persons ill with diseases dangerous to the public health." A law requiring the maintenance of such hospitals was passed by the General Court early in 1912, and was approved by the Governor on Feb. 24 of that year. This law provides that:—

"Each city shall, and each town may, and upon the request of the State Board of Health, shall, establish and maintain constantly within its limits one or more hospitals for the reception of persons having smallpox, diphtheria, scarlet fever, tuberculosis or other diseases dangerous to the public health as defined by the State Board of Health, unless there already exists in the city or town a hospital for the reception of persons ill with such diseases, which is satisfactory to the State Board of Health, or unless some arrangement which is satisfactory to the State Board of Health is made between neighboring cities or neighboring towns, or neighboring cities and towns, for the care of persons having such diseases. All such hospitals established and maintained by cities or towns shall be subject to the orders and regulations of the Boards of Health of the cities or towns in which they are respectively situated. Plans for the construction of the said hospitals shall be approved by the State Board of Health before the hospitals are constructed, and the State Inspectors of Health shall annually make such examination of said hospitals as in the opinion of the State Board of Health may be necessary. A city or town which, upon the request of the State Board of Health, refuses or neglects to establish and maintain such a hospital shall forfeit not more than five hundred dollars for each refusal or neglect; *provided, however,* that if, in the opinion of the Boards of Health of two or more adjoining cities or towns or a city and an adjoining town or towns, such hospitals can advantageously be established and maintained in common, the authorities of the said cities or towns may, subject to the approval of the State Board of Health, enter into such agreements as shall be deemed necessary for the establishment and maintenance of the same."

During the year which has elapsed since the passage of this act, considerable progress has been made towards the fulfilment of its requirements. Of the 33 cities in this Commonwealth, 9 now maintain adequate independent hospitals of the type in question, and in 7 there are hos-

pitals of this kind under construction. Of the towns only two maintain independent isolation hospitals, though the majority, and the remaining 17 cities, have provision of some sort, or make arrangement for the care of such cases in some neighboring municipality. The condition is in the main creditable, since most communities have evinced a disposition to comply with the requirements of the Act. It is to be noted that the law specifies only smallpox, diphtheria, scarlet fever, and tuberculosis, though the list of notifiable diseases, declared by the State Board to be dangerous to the public health, now includes actinomycosis, anthrax, Asiatic cholera, cerebrospinal meningitis, diphtheria, glanders, leprosy, measles, ophthalmia, neonatorum, pertussis, poliomyelitis, scarlet fever, smallpox, tetanus, trachoma, trichinosis, tuberculosis, typhoid fever, typhus fever, varicella, and yellow fever. As a matter of fact, if the notification of these diseases be prompt and universal, home isolation is in many cases adequate. In larger communities, however, hospital accommodation is essential, and within another year this provision will probably be general.

EFFECT OF CITY LIFE ON PHYSICAL DEVELOPMENT.

THERE have been many discussions relative to the supposed evil effect of city life upon physical development and vigor. *A priori*, the case has always been against the city, on account of the presumably more favorable hygienic conditions prevailing in rural districts. As a matter of fact, however, the case does not appear quite proved; and there are reasons for believing that life in a city is not necessarily destructive to physical health or even inconsistent with its highest development and propagation. In his "Government of American Cities," Professor William Bennett Munro, of Harvard, considers this question from the pertinent standpoint of fitness for military service:—

"A good deal used to be said and written about the debilitating effect of urban life upon individual physique. Nothing seemed easier to establish than *a priori* conclusions as to the superior physical development of the rural population. It was, indeed, so far taken for granted that the rural militiaman was physically superior to the townsman, that one of the stock arguments for the encouragement of English agriculture by corn laws and other protective legislation, was the necessity of preserving that yeomanry of England which was alleged to furnish the military sinew of the kingdom. There are, of course, a great many reasons why the per capita physical attainment of the country ought, if it could be measured, to be greater than that of the town. The minute division of labor in urban industries, which even in Adam Smith's day, required a man to spend his lifetime in making the 19th part of a pin, nowadays gives him an even more specialized task in production. Most urban occupations develop only a very small part of the worker's physical powers, whereas the rural employments encourage bodily versatility and all-round physical development.

"When one attempts to adduce accurate statistical evidence of this rural prowess in point of physical development, however, one does not find the expected proofs so readily forthcoming. Statistical data to prove or to disprove the claim are not to be had in America. We must go to those countries of Continental Europe, such as France, Germany and Italy, where universal military service is compulsory, and where, in consequence, practically the whole adult male population is subjected, section by section, to physical examinations of exactly the same scope and nature. Now, the evidence that comes from all these countries—and it is based upon the measurements of many millions of men drawn from all sections during the last quarter century—gives no conclusive support to the notion that city life is physically debilitating. On the contrary, the percentage of those who are rejected each year for failure to meet the minimum requirements in height, weight, chest measurement, and so forth, is in many cases higher among recruits from the rural areas than among those drafted from the population of the large cities. It may be, of course, that many of those who enter the army from cities were born in the country, but that factor alone would scarcely account for the urban superiority which the army statistics often show. It ought to be added, also, that this evidence which disputes popular notions concerning the superiority of rural life as a developer of physical strength and stamina receives corroboration in the expressed opinions of nearly every one who has given the matter careful observation. Military leaders have frequently, in the great wars of the 19th century, commented upon the superior powers of physical endurance displayed by urban regiments. If the urbanization of a people means physical degeneracy, the evidence now obtainable gives no conclusive proof of it. Health, strength and vigor evidently depend less on place of residence and occupation than upon cleanliness, variety of diet and prompt attention to minor bodily ills."

After all, it should be remembered that the city, though man-made, must be regarded as filling a place in the scheme of evolution, and as

affording advantages of environment without which man's progress to his present estate would have been impossible. Nor is the city properly a mere mill for remorselessly grinding the grist of humanity with which it is supplied from the country. It is nature's laboratory of finest experiment in the problems of coördinated human living.

DR. FRIEDMANN AND THE TREATMENT OF TUBERCULOSIS.

IN the issue of the *Berliner klinische Wochenschrift* for November 18, 1912 (Vol. xlix, p. 2214), was published an article by Dr. Franz Friedrich Friedmann, of Berlin, giving a preliminary report of his experience in the treatment of tuberculosis by intravenous and intramuscular injection of a preparation of living tubercle bacilli. Before his communication had received the judgment of the scientific world, its data were seized by the daily press and exploited in more or less garbled and sensational form. This action, as in the case of Koch's tuberculin, is much to be regretted, both for Dr. Friedmann's sake, for the sake of his discovery (whatever its merits may prove to be) and for the sake of persons in whose minds perhaps unwarrantable hopes of cure may have been aroused.

Among such persons in this country is Mr. Charles E. Finlay, a wealthy New York banker, who, on Jan. 24 announced that he would pay $1,000,000 to Dr. Friedmann, if the latter would demonstrate in America his ability to cure 95 out of 100 patients with tuberculosis, selected so as to represent various stages of the disease. On January 26 an acceptance of this offer is said to have been received by cable from Dr. Friedmann. On February 18 Dr. Friedmann sailed from Hamburg, and landed at New York on February 25. He was met by Dr. Milton H. Foster, of the United States Public Health Service, and is said to have agreed to demonstrate his method of treatment before representatives of that service. On Feb. 27, Dr. Friedmann had a further conference with Dr. John F. Anderson, director of the Hygiene Laboratory at Washington, D. C.

The above facts are all that can be stated of the matter at present. The actual merits of Dr. Friedmann's alleged discovery are as yet unknown to the medical profession. Apparently his bacterin is a preparation of living, nonvirulent tubercle bacilli from turtles, but the method of its obtainment is uncertain, and the results of its use are not yet positively demonstrated. Naturally the way in which the affair has been brought to public knowledge has aroused skepticism in the minds of physicians. It must be remembered, however, that Dr. Friedmann may be the victim of unfortunate newspaper notoriety and publicity. His own claims for the treatment are much more modest than those alleged in the daily press. To his credit also it should be said that he is reported to have denied his intention to accept any pecuniary reward in the event of successful demonstration of his method. There is no intrinsic reason why his discovery might not rank with those of von Behring or of Ehrlich. At all events, he deserves, and will receive, a fair, impartial trial, and opportunity to show his results, without popular or professional prejudice in either direction.

AMERICAN ASSOCIATION OF MEDICAL EDUCATION.

THE ninth annual conference of the American Association of Medical Education, Health, and Public Instruction, held in Chicago on February 24 to 26, was attended by 300 delegates from the various universities, medical schools, and state boards of registration. On February 24 there was an address by Dr. Abraham Flexner, of New York, on "The European Side of Medical Education"; and on February 25 by Dr. S. Weir Mitchell, of Philadelphia, on "The Profession of Medicine in the War of the Rebellion." At the closing session, on February 26, a resolution was adopted recommending that the entrance requirement for all schools in the Association of American Medical Colleges shall include at least a year of previous college work in physics, chemistry, animal biology, and a modern language. A further resolution was adopted establishing a five-year instead of a four-year course as the standard for medical schools, the last year to be spent in hospital work. The passage of these recommendations seems an important step in the progress of medical education in this country, and is likely to be followed by corresponding changes in the requirements and curriculum of many schools.

MEDICAL NOTES.

An Honor for Dr. Carrel.—Report from Paris states that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, New York, has recently been decorated with the cross of the French Legion of Honor.

Operation on the Queen of Roumania.—Report from Bucharest states that a preliminary operation for cataract was performed there last week on Carmen Sylva, the Queen of Roumania, by Dr. Landolt, of Strassburg.

A British Clerical Centenarian.—The Reverend P. Carlyon, of Falmouth, Cornwall, England, recently celebrated the supposed 102d anniversary of his birth. In view of his profession as a clergyman, it would seem that the statement of his age must be accepted as veracious.

An Indian Centenarian.—Alexander Daylight, a Colville Indian chief, who died last week at Kettle Falls, Wash., was alleged to be 114 years of age.

Balkan Red Cross Relief Fund.—Report from Washington, D. C., states that on Feb. 20 the American Red Cross cabled to the Greek Red Cross, for Balkan relief work, a sum of $1400 which was raised by the Greek Red Cross committee of New York. The total fund thus far subscribed for this purpose in Massachusetts now amounts to $9,417.08.

The Sanitation of Ecuador.—Report from Washington, D. C., states that on Feb. 18 the House of Representatives passed a resolution authorizing Dr. William C. Gorgas, with two other United States Army medical officers and three engineers temporarily to accept service under the government of Ecuador for the purpose of supervising projected improvements in the sanitation of Guayaquil and other ports in that country.

Inspection of Tropical Fruit Trade.—It is reported from Washington, D. C., that the surgeon-general of the United States Public Health Service has detailed Dr. J. H. White, of New Orleans, La., to make a tour of various Central American, West Indian, and Caribbean ports, to inspect the conditions of their fruit trade to this country, with special reference to the risk of importing tropic diseases.

Surgical and Gynecological Society of Knoxville.—The Surgical and Gynecological Society of Knoxville held its first public meeting in the Lyceum Auditorium, Thursday evening, Feb. 6, 1913. The essayist for the evening was the president, Dr. Benjamin C. Cates, who gave a treatise upon the subject of "The Present Status of Cancer." General discussion followed.

This Society was organized in Knoxville, Jan. 2, 1913, for the purpose of the advancement of medical and surgical sciences relating to surgery in all its branches and to gynecology, to promotion of friendly intercourse among its members and the stimulation of original investigation and discussion of subjects pertaining to these special branches. It was decided that each incoming president shall deliver to the Society an annual address upon a subject of his own selection.

The officers of the ensuing year are:

Dr. Benjamin B. Cates, President.
Dr. H. J. Kelso, First Vice-President.
Dr. Albert G. Kern, Second Vice-President.
Dr. Herbert Acuff, Secretary-Treasurer.

The Society meets on the first Thursday night of each month, and visiting surgeons and gynecologists are cordially invited to attend.

BOSTON AND NEW ENGLAND.

Fire at the Boston City Hospital.—On Tuesday of last week, Feb. 18, a fire was discovered in the coal-pockets at the power plant of the Boston City Hospital, at the water-front on Albany Street. The hoisting tower and part of the coal were destroyed, the total loss being estimated at $20,000.

Opposition to the Ellis Milk Bill.—Opposition to the Ellis milk bill continues vigorous among the milk producers. In Boston a new organization, the New England Milk Producers' Association, was formed last week, to maintain the contest against the measure. In Danvers, Mass., at a meeting of the State Grange, attended by about 300 farmers, a committee of four was appointed to draw up resolutions favoring the producers' bill, described in the issue of the Journal for Feb. 20.

A USEFUL MEASURE IN PREVENTIVE MEDICINE.—It is stated that in New Haven, Conn., a regulation of the local Board of Health requires every ambulatory patient with pertussis to wear a tag announcing the nature of the malady. This provision might to advantage be adopted also in tuberculosis.

DISPENSARY AFTER-CARE OF CHILDREN.—The recently published second issue of the Boston Dispensary *Quarterly* calls particular attention to the work of this institution in the after-care of the patients in its children's department. It is not enough merely to treat the child during the acute phase of his disease; he must be followed to his home, his subsequent life supervised, and faulty home conditions remedied by education and judicious charity. This end is being attempted by the Dispensary through a staff of district nurses and social workers, and it is believed that during the first year of its effort, valuable results have already been attained.

CONSTITUTIONALITY OF MEAT INSPECTION LAW.—By a decision of the Supreme Court last week the law, requiring the inspection and stamping of all meat from animals killed on farms outside Massachusetts and brought into the state for sale, was upheld as constitutional. This judgment was rendered upon the protest of a delinquent who appealed from a fine imposed under the operation of this law.

REPORT OF THE BUTLER HOSPITAL.—The recently published sixty-ninth annual report of the Butler Hospital at Providence, R. I., records the work of this institution for the calendar year 1912. During this period a total of 248 patients was treated. The most important event of the year was the completion and opening of the William H. Potter Home for nurses. Upon the occasion of its dedication, at the graduation exercises of the training school on Nov. 19, Dr. Charles V. Chapin, of Providence, delivered an address on "The Development of Modern Nursing," which is reprinted in this report. The total number of nurses graduated from the school in 1912 was ten women and nine men.

MEASLES AT LAWRENCE.—Report from Lawrence, Mass., on Feb. 21, states that measles is at present epidemic in that city, where there have been nearly 400 cases of the disease since Jan. 1. Three of the local public schools have been ordered closed.

NEW YORK.

MORTALITY IN JANUARY.—The weekly reports of the Health Department show that in the month of January the mortality in the city represented an annual death-rate of 14.46, as against 14.21 in December and 15.60 in January, 1912. Among the diseases in which there was an augumented fatality were the following: The weekly average of deaths from measles increased from 6 in December to 9.5 in January; the weekly average from scarlet fever from 7.5 to 14.75; from whooping-cough, from 4 to 5; from diphtheria and croup, from 25.5 to 27.75; from influenza, from 8 to 15.75; from epidemic cerebrospinal meningitis, from 2 to 5.25; from pulmonary tuberculosis, from 160.25 to 170.75; from acute bronchitis, from 13.75 to 15.75; from pneumonia, from 138.25 to 167; from bronchopneumonia, from 94.5 to 107; from diarrheal diseases under 5 years, from 27.75 to 31.75; from tuberculous meningitis, from 8.25 to 11; from appendicitis and typhilitis, from 10.5 to 12; from hernia and intestinal obstruction, from 9.75 to 16.75; from cirrhosis of the liver, from 20.5 to 23; from Bright's disease and acute nephritis, from 124.5 to 125.5; and from puerperal diseases, from 12 to 13.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 7.25 to 3; from cancer, from 85.75 to 79.5; from apoplexy and softening of the brain, from 24 to 18.5; and from organic heart diseases, from 194.25 to 190.

RELATIVE BIRTH-RATES.—Basing the percentage upon each 1,000 births reported, the rate in New York City in the year 1912 was 105, while according to the figures published for England and Wales, which include both urban and suburban areas, the rate in 1911 was 130 per 1,000 births. In Germany in 1910 the rate was 162 and in Berlin, 167.

DEFECTIVE CHILDREN.—In 1912 288,469 children in New York were examined under the system of medical inspection and examination of pupils in the public schools maintained by the Health Department, and of this number, 87,361

were found to be suffering from one or more physical defects interfering with their general health. As a result of the efforts of the school nurses, 57,062 of these received treatment, either by the family physician or at public institutions. During the year the department established six children's medical clinics in parts of the city where proper facilities for clinical treatment have been lacking. These clinics are designed exclusively for school children whose parents are wholly unable to pay for medical treatment, and they are already crowded to their capacity. In addition to the number mentioned, 119,359 were found to have defective teeth, though otherwise normal. The need of facilities for dental treatment has been acute, but the budget appropriation for 1913, allowing the appointment of ten dentists, has made it possible for the department to make a beginning in establishing dental clinics in connection with the school children's medical clinics. Studies during the past year in connection with the Research Laboratory of the department concerning the specific cause and prevention of trachoma have given such evidence as to make the outlook most encouraging for a speedy solution of this question. It has been demonstrated that (1) practically all cases of so-called trachoma (granular and papillary conjunctivitis) in the public schools have been apparently cured within a year when cases have been seen early; (2) with careful treatment of all cases of acute conjunctivitis in homes, clinics and schools, the cases of papillary and granular conjunctivitis have become markedly less in number; (3) prophylactic and curative treatment of these eye conditions has been greatly helped by providing special classes in schools for these cases, where they may be under direct and continuous control.

Death-Rates in 1912.—The death-rate in 1912 in the State, as in the City of New York, was the lowest ever recorded; being 14.8, as against 15.5 in 1911 and 16.2 in the three years preceding. The mortality from diphtheria was 1,625, the smallest on record. There were 300 fewer deaths from this disease than in 1911, when for the first time they fell below 2,000. The average yearly mortality for the seven years preceding was 2,400, and for the twenty years before that, 4,600, while in some years in early records, about 25 years ago, the deaths from diphtheria numbered more than 6,000. Typhoid fever caused 1,128 deaths, and this also is the smallest number ever recorded. For the last five years the yearly average has been 1,300 and for 23 years before that it was 1,600. The Health Department has published an interesting set of tables showing the reduction in typhoid fever rates resulting from improved water supplies in various cities and towns of the State. The most remarkable result has been in Peekskill, where the rate (per 100,000) in 1903-5 was 22.5. In 1906, the department urged the removal of violations of water rules. In 1908, when as the result of a typhoid epidemic, the rate rose to 202.3, it renewed recommendations and urged water filtration. In 1910, when new filters went into permanent operation, the rate was 26.2, and in 1912 there was not a single death from typhoid. In New York City the rate was 17.4 in 1907, 12.8 in 1908, 12.7 in 1909, 11.6 in 1910, 11.0 in 1911, and 9.7 in 1912. Since 1907 some 267 violations of water rules have been examined into and necessary orders issued by the department to local health boards. Since that year also the city has been very active in the patrol of the watershed, and during the past two years a hypochlorite plant has been in use. In 1912 pulmonary tuberculosis caused 13,702 deaths, or 9.5% of the total deaths in the State. This is about 500 less than in 1911, and is the smallest mortality in 9 years, in all of which the deaths have exceeded 14,000. Pneumonia caused 9,545 deaths, or not far from the average of the past five years. Earlier, the mortality in some years was above 15,000. The lowered childhood mortality is the most remarkable feature in the mortality of the year. The deaths under 1 year were 24,536 and between 1 and 5 years, 10,000; which is less for both periods than in any of the past five years, the average of which were respectively 26,600 and 11,800. The mortality from cancer, which in 1885 caused about 2,000 deaths, has steadily increased year by year, until in 1912 it reached 8,234, an increase of 300 over 1911. Organic diseases of the heart caused 14,962 deaths, and Bright's disease and acute nephritis, 11,886.

Abolition of Village Health Boards Recommended.—The State Health Commission recently appointed by Governor Sulzer, of which Dr. H. M. Biggs of New York is chairman, made a report to the Legislature on February 19 in which it recommended that town and village boards of health throughout the State should be abolished and that the State should be districted under the direction of a State Health Council.

GERMAN HOSPITAL AND DISPENSARY.—The annual meeting of the managers of the German Hospital and Dispensary was held on February 17. During the year 48,228 patients were treated, of whom 6,935 were cared for in the hospital department. The training school for nurses of the institution has now passed the twenty-sixth year of its existence.

The Sanitarium for Hebrew Children at Rockaway Park, Borough of Queens, has received a bequest of $20,000 under the will of the late Mrs. Caroline Neustadter of New York.

HOSPITAL IMPROVEMENTS.—A press item under the date of Feb. 10 summarizes as follows the work now in progress in New York for the improvement of hospital buildings in that city:

"Hospital improvements to the value of more than $21,000,000 are either being carried forward in this city or are planned for the immediate future. They consist of new buildings, reconstructions and betterment of equipment of both public and private hospitals. The most costly and elaborate work is the rebuilding of Bellevue and the increase of the capacity of its allied hospital in Harlem. The present capacity is 1290 beds. The new hospital will accommodate 2,500.

"At Harlem a new wing is being added, which will double the present capacity of 180 beds. The cost is to be about $250,000. The entire cost of all the Bellevue plans is estimated at $10,000,000.

"The directors of the New York Hospital are planning an entirely new building. It is intended to erect a building with the most modern equipment, with an ultimate capacity of 600 beds. The capacity of the present hospital is 260 beds. It is estimated that the new hospital and site will cost between $4,000,000 and $5,000,000.

"Other improvements are under way for the Greenpoint Hospital, Mount Sinai and Flower Hospital, while a new down-town hospital, which is expected to do valuable work, is under construction by the Volunteers of America at Beekman and Water streets."

A CENTENARIAN.—Miss Elizabeth Woodbridge Thompson, who died on Feb. 26 at Saratoga Springs, N. Y., is said to have been born in New London, Conn., in 1811. She retained her faculties and activity until a few days before her death.

INVESTIGATION OF STATE HOSPITALS.—Report from Albany, N. Y., states that on Feb. 25, the Legislature concurred in a resolution calling for an investigation of the Bloomingdale Hospital and the Society of New York Hospital, at White Plains, by a legislative committee, and appropriating $5,000 for the purpose.

Current Literature.

MEDICAL RECORD.

FEBRUARY 15, 1913.

1. THOMPSON, W. G. *Centenarians and Nonagenarians.*
2. STETTEN, D. *The Present Status and Future Scope of Thoracic Surgery.*
3. CASTELLI, E. *Public Protection Against Mental Defectives in Paris—The Working of the Special Infirmary Connected with the Police Department.*
4. MORGAN, J. D. *Hodgkin's Disease.*
5. *MEAD, F. H. *Scarlet Fever: Is the Desquamatory Stage Contagious?*
6. LEWINSKI-CORWIN, E. H. *The Associated Out-Patients' Clinic of the City of New York.—A Social Force.*
7. WARBRICK, J. C. *Indicanuria and the Phosphates.*

5. Mead questions the contagiousness of the desquamatory stage of scarlet fever, and cites some experiences of his and some opinions of others to support his contention. Statistics show, he says, that only in a very small percentage of cases do secondary cases arise from exposure to desquamation, and only a comparatively infinitesimal number of cases thus exposed catch the disease. Where the very few cases have developed from desquamation it is probable that the desquamation was infected from discharges from the nose, throat or ears. The old fashioned quarantine for scarlet fever should go, and with no nasal, aural or buccal complications and no kidney involvement, the time of quarantine for an ordinary case will be cut down to twenty-eight or thirty days.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 15, 1913.

1. HENRY, F. P. *Asellius and the Discovery of the Lymphatic Circulation.*
2. ACHARD, H. J. *Friedmann's New Tuberculosis Remedy.*
3. PEDERSEN, V. C. *Acute Gonococcal Urethritis in the Male.*
4. WILLIAMS, T. A. *Multiple Professional Cramps in a Psychasthenic.*
5. SEVER, J. W. *The Relation of Scoliosis to School Seating.*
6. WALKER, J. T. A. *The Routine Disinfection of Schools.*
7. HERVEY, C. R. *Ether, Hot or Cold?*
8. HAYS, H. *Relation of Eustachian Tube to Chronic Catarrhal Otitis Media.*
9. SLATAPER, F. J. *Epidemic Meningitis.*
10. JENNINGS, W. B. *The Worsted Truss.*
11. FREIMAN, M. *Carcinoma of the Lung.*
12. RUSSELL, F. F. *The Prevention of Typhoid Fever.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 15, 1913.

1. STONE, W. J. *The Use and Abuse of Bacterial Therapy.*

2. MONTGOMERY, C. M. *Pleural Effusion Due to Artificial Pneumothorax.*
3. BILLINGS, F. *Benzol in the Treatment of Leukemia.*
4. EGGLESTON, C., AND HATCHER, R. A. *The Emetic Action of the Digitalis Bodies.*
5. RHEIN, M. L. *Mouth Infections: Their Etiology and a Consideration of What Effect They May Have on the Vital Organs and Their Tissues.*
6. RYFKOGEL, H. A. L. *Operation for Epithelioma of the Lower Lip.*
7. CLARK, W. I. *Medical Supervision of Factory Employees.*
8. BARTLETT, W. *The Technic of Gastro-Enterostomy.*
9. MAYO, W. J. *Grafting and Traumatic Dissemination of Carcinoma in the Course of Operations for Malignant Disease.*
10. BORNSTEIN, M. *Temporary Embolism of the Mesenteric Artery.*
11. PARKER, C. A. *An Unusual Type of Hydrocele.*
12. MARK, E. G. *A New Suprapubic Drainage Apparatus.*
13. SCHULMAN, M. *Syphilis of Sternum.*

FEBRUARY 22, 1913.

1. *CRAIG, C. F. *The Interpretation of the Results of the Wassermann Test.*
2. BARACH, J. H. *Vaccination and Local Anaphylaxis.*
3. *CROTTI, A. *Thymus Tracheostenosis and Thymus Death with Report of Cases.*
4. BRENNEMANN, J. *An Experimental Study of Milk Coagulation in the Stomach, Together with Clinical Observations on the Use of Raw and Boiled Milk.*
5. *CHIPMAN, E. W. *The Etiology and Treatment of Acne.*
6. *JUTTE, M. E. *Transduodenal Lavage. Treatment and Report of Some Cases of Chronic Diseases.*
7. MCLEAN, F. C. *Death Following the Administration of Phylacogen (Schafer).*
8. HARRISON, W. H. *Trachoma: Its Prophylaxis and Therapy.*
9. MORGAN, W. E. *The Serpent's Tooth in Formaldehyde.*

1. Craig's interpretation of the results of the Wassermann reaction are based on 10,000 tests made in the Army Laboratory in Washington, on 5,216 individuals. He found 89.4% of those examined positive in primary syphilis, 95.6% in secondary syphilis, 86.8% in tertiary syphilis, 65.4% in the latent stage, 89.2% in congenital syphilis and 68.1% in parasyphilitic conditions. The article is not easily reviewed in a brief way, but is of great interest and value.

3. Crotti's article on thymic tracheostenosis is very thorough and is well illustrated by excellent drawings.

5. Chipman believes that bacteria do not figure in the production of acne unless the sebaceous ducts are occluded. Bacterial vaccine treatment is not necessary when we are able to provide for the drainage of the ducts, which is the logical treatment of this condition.

6. Jutte is a strong advocate of transduodenal lavage for the treatment of various disturbances of the digestion, especially involving the liver secretions. The technic is not difficult or objectionable to the patient. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

JANUARY, 1913.

1. *VON NOORDEN, C. *The Theory and Treatment of Diabetes.*
2. *STENGEL, A. *Extracardiac Causes of Failure of Compensation in Valvular Diseases of the Heart.*
3. *CRILE, G. W. *The Kinetic Theory of Graves' Disease.*
4. *BARKER, L. S. *The Commoner Forms of Renal Disease, with Special Reference to the Knowledge of Them Most Useful to the General Practitioner.*
5. *MCKENZIE, R. T. *The Influence of Exercise on the Heart.*
6. DUNN, A. R., AND SUMMERS, J. E. *Observations on a Case of Mediastino-Pericarditis Treated by Cardiolysis (Brauer).*
7. *CRAIG, C. F. *The Relation of Parasitic Amoebae to Disease.*
8. PRIMROSE, A. *Breast Tumors, with Special Reference to Carcinoma.*
9. *FRAZIER, C. H. *The Relief of Gastric Crises in Tabes Dorsalis by Rhizotomy.*
10. BALDWIN, H. *A Case of Alkaptonuria.*

1. Von Noorden's article on diabetes is one that deserves to be widely read. It is a clear and concise summary of the newer teaching as to the disease, which puts the matter in an entirely new light to all who have not followed the recent literature. Diabetes is essentially a condition in which the liver is over ready to discharge dextrose into the blood in excess of the capacity of the tissues to utilize it. The production and discharge of dextrose from the glycogen stored in the liver is normally controlled and regulated by two factors, the inhibiting influence of an internal secretion of the pancreas, and a stimulating effect of the chromaffin system of the adrenals. These factors are in turn regulated by other influences. The action of the chromaffin system in stimulating discharge of sugar from the liver may be increased by nervous influences as by stimulation of Claude Bernard's centre in the medulla. The action of the pancreas inhibiting discharge of sugar from the liver may be lessened either by disease of the pancreas itself or by overactivity of the thyroid gland or of the hypophysis; it may be increased by the action of the parathyroid bodies. Diabetes may theoretically be the result of any disorder which stimulates the discharge or lessens the inhibition to discharge of sugar from the liver through abnormal action of *any of these* influences. Practically the most important causes are disease of the pancreas and disorders of the organs which influence the function of the pancreas. But whatever the ultimate cause, there is in all cases of diabetes an abnormal irritability of the sugar-forming apparatus of the liver, varying in degree according to the severity and stage of the disease. Recognizing this fact, the rational treatment of the disease lies in the attempt to calm this excessive irritability by rest of function, provided, if possible, before the condition has been long established or before it has attained a high degree. Muscular work and mental excitement are to be remembered as stimuli to sugar production, but of chief importance is the influence of food. Carbohydrates are to be so limited as to lie within the tolerance of the individual patient, as shown by absence of glycosuria. But carbohydrates are not alone to be considered. The proteins, while probably not to any large extent a source of sugar production, are believed to act as excitants to the liver cells, which in certain cases serve to stimulate the abnormal production of sugar. Limitation of the protein intake is, therefore, indicated in some instances. Fat, on the other hand, does not excite the sugar forming apparatus, and alcohol also serves as a food without this undesirable effect. Of carbohydrates it is apparent that for reasons still unknown, some forms stimulate the discharge of sugar less than others; oatmeal seems to contain some substance which renders it more suitable for use by diabetics than the usual forms of carbohydrate. Noteworthy is the author's protest against the common practice of allowing increased amounts of carbohydrate to combat acidosis; he holds that the attention commonly paid to acetone formation in moderate degrees is excessive. Acetone formation is best com-

batted by sparing the sugar-forming mechanism by diminution of carbohydrate and of protein.

2. Stengel maintains that in consideration of heart disease and its effects, too much attention is directed to the heart itself, and too little to the circulation as a whole. The pumping power of the heart is not the only factor in determining the efficiency of the circulation. The flow of blood is influenced also by the anatomical and vasomotor conditions of the arteries and arterioles; the return flow through the veins is aided by the action of the skeletal muscles and of the diaphragm; moreover, there is evidence that the amount and the viscosity of the blood, while difficult to determine, may be of great importance. The article is suggestive rather than didactic, but the conclusion that the extracardiac factors of the circulation deserve more attention than they are commonly given is undoubtedly justified.

3. Crile expounds the view that Graves' disease is not a disorder primarily of the thyroid gland, but rather one in which the thyroid gland is secondarily influenced in an abnormal manner by bodily states allied to those to which the psychologist traces the emotions. This seems to lie chiefly in the motor mechanism abnormally stimulated from the brain and reacting upon the thyroid. In accordance with this theory, the avoidance of fear and of excitement in the patient in connection with operations on the thyroid is of the greatest importance.

4. Barker's article is an able didactic description of the clinical types of nephritis, but without new teachings.

5. McKenzie reports the finding of heart murmurs in 74 out of 266 apparently healthy students examined after exercise. He attaches no clinical importance to these. Certain recent reports are further summarized, showing that severe athletic competition does not lead to circulatory disorders, even in later life.

7. Craig reviews literature and reports original evidence that the amoebae that have been cultivated outside of the body bear no relation to human disease. He further holds that the *Entamoeba coli* is harmless in the human intestine, whereas the *E. histolytica* and *E. tetragena* are most frequently concerned in the etiology of amoebic dysentery.

9. Frazier's article is an enthusiastic report upon the value of resection of posterior nerve roots for the relief of tabetic crises. [F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

JANUARY, 1913.

1. DARLING, S. T. *Observations on the Cysts of Entamoeba Tetragena.*
2. *LONGCOPE, W. T. *Syphilitic Aortitis: Its Diagnosis and Treatment.*
3. *HOOVER, C. F. *The Minute Volume and Alveolar Air in Pulmonary Emphysema.*
4. CROWDER, T. R. *A Further Study of the Ventilation of Sleeping Cars.*
5. COCA, A. F., AND L'ESPERANCE, E. S. *A Modification of the Technic of the Wassermann Reaction.*
6. *KAHN, M. *Study of the Chemistry of Renal Calculi.*
7. *DUKE, W. W. *Causes of Variation in the Platelet Count. Experimental Results Showing the Effect of Diphtheria Toxin, Benzol and Tuberculin on the Platelet Count in Rabbits.*

2. Longcope writes an elaborate and very valuable paper on the diagnosis of syphilitic aortitis and its treatment with salvarsan. Twenty cases are tabulated in detail. The salvarsan was given intravenously in practically all the cases. His conclusions are as follows: Syphilis produces a characteristic lesion of the aorta, which is responsible for most aneurysms, about 75% of the cases of aortic insufficiency in adults, many cases of dilatation of the aorta, and a certain group of cases of angina pectoris. The infection of the aorta probably occurs during the secondary stage, and, though symptoms and signs may develop within a few months, the process usually remains latent or unrecognized for fifteen years or more. Syphilitic aortitis is thus probably a common cause for a positive Wassermann reaction in so-called latent syphilis. The early symptoms and signs of syphilitic aortitis are: Precordial pain, slight dyspnea with attacks of paroxysmal dyspnea and angina pectoris, cardiac hypertrophy, dilatation of the aorta, increased pulsation of the vessels of the neck. The precordial pain, paroxysmal dyspnea and angina pectoris are temporarily or permanently relieved by repeated injections of salvarsan, although in certain instances these symptoms may be aggravated for the first forty-eight hours after injection.

3. Hoover discusses pulmonary emphysema and the results of clinical experiments made by him on patients suffering with this condition. He finds that in emphysema the patient suffers from an impaired alveolar ventilation of the lung and not from an impairment of the lung as an organ of external respiration. The alveolar air constitutes a very diminished part of the minute-volume of air, and this diminution is due to an increase of the dead space, which is best explained by bronchiolar atony.

6. Kahn made a chemical analysis of sixteen renal calculi from different patients, and draws the following conclusions from his study: The large majority of renal stones are composed of oxalate of lime; sometimes the calcium salt is the only component of the stone. Uric acid and the urates are found in small quantities in all renal calculi, but it is rare to find a renal stone composed mainly of them. The shape, color and consistency of a stone do not constitute criteria of its chemical composition. Gouty tophi are not always composed of uric acid or the urates, for in three concretions examined a negative murexid test was invariably obtained.

7. Duke studied the effect of diphtheria toxin, benzol and tuberculin on the platelet count in rabbits. He finds that diphtheria toxin in large doses is immediately poisonous to the bone marrow; in sublethal doses first stimulates and then poisons the platelet-forming organs; in very small doses causes a rise in the platelet count. Low platelet counts in diphtheria would, therefore, indicate severe toxemia, especially if early in the disease. [L. D. C].

THE JOURNAL OF EXPERIMENTAL MEDICINE.

FEBRUARY 1, 1913.

1. ZINSSER, H. *On Anaphylatoxins and Endotoxins of the Typhoid Bacillus.*
2. AMOSS, H. L. *Organic Matter in the Expired Breath, with Especial Reference to Its Inhibiting Power on Oxidizing Ferments.*
3. STEWART, G. N., AND ZUCKER, T. F. *A Comparison of the Action of Plasma and Serum on Certain Objects Used in Biological Tests for Epinephrin.*
4. STEWART, G. N., AND ZUCKER, T. F. *The Action of Hydrocele Fluid and Certain Other Pathological Liquids on Some of the Objects Used in Biological Tests for Epinephrin.*
5. INGEBRIGTSEN, R. *Studies of the Degeneration and Regeneration of Axis Cylinders in Vitro.*
6. BUNTING, C. H., AND JONES, A. P. *Intestinal Obstruction in the Rabbit.*
7. MCCRUDDEN, F. H., AND FALES, H. L. *Intestinal Absorption in Infantilism.*
8. MCCRUDDEN, F. H., AND FALES, H. L. *The Cause of the Failure to Develop in Infantilism.*
9. KRAMER, B. *The Rôle of the Lipoids and Particularly Lecithin in Narcosis.*
10. *ROUS, P., AND MURPHY, J. B. *Variations in a Chicken Sarcoma Caused by a Filterable Agent.*

11. *Noguchi, H., and Moore, J. W. *A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis.*

10. Rous and Murphy have continued their study of a spindle-cell sarcoma of the fowl. They have previously reported that they were able to transplant this growth by a cell-free filtrate. In this paper they discuss the variations in the resulting growth from the cell-free filtrate. Some of the tumors tended to approach the round cell form, others the giant cell form. They were unable to discover the conditions that determine these variations.

11. Noguchi and Moore demonstrated the treponema pallidum in twelve out of seventy paretic brains examined. These twelve cases were examples of undoubted general paralysis and showed the typical post-mortem findings in the brain. The spirochetes were found in all layers of the cortex, with the exception of the outer or neuroglia layer. Careful search of the pia failed to show any organisms.

[R. I. L.]

ANNALS OF SURGERY.

NOVEMBER, 1912.

1. *Shepherd, F. J. *Tetany Following Extirpation of the Thyroid.*
2. *MacEwen, J. A. C. *The Surgical Treatment of Aortic Aneurysm.*
3. Venable, C. S. *Primary Sarcoma of the Peritoneum.*
4. Delatour, H. B. *Thrombosis of the Mesenteric Vessels.*
5. Sawyer, P. E. *Malignant Tumors of the Mesentery.*
6. *Kerr, H. H. *Volvulus of the Stomach.*
7. Upcott, H. *Tumors of the Ampulla of Vater.*
8. Broasch, W. F. *The Clinical Diagnosis of Congenital Anomaly in the Kidney and Ureter.*
9. Fuller, E. *The Operative Procedure in Cancer of the Prostate.*
10. Elting, A. W. *The Treatment of Fistula in Ano.*
11. Ballenger, E. G., and Elder, O. F. *Salvarsan and Neosalvarsan; Their Intravenous Injection.*
12. Primrose, A. *Ivory Dowel for Preserving the Finger in a Case of Enchondroma of a Phalanx Complicated by Fracture.*
13. Gerster, J. C. A. *The Reduction of the Fragments in Fractures of the Long Bones.*
14. *Monks, G. H. *Tying the Knots of Ligatures and Sutures with One Hand.*
15. Buchanan, J. J. *A Modification of Bartlett's Gastroenterostomy Clamp.*

1. After reviewing the history of the parathyroids, their experimental extirpation, the action of calcium lactate and salts of strontium, magnesium and sodium, and results with parathyroid feeding, Beebe's nucleo-proteid and parathyroid transplantation, Shepherd reports in detail a case of tetany following thyroidectomy. The pathologist found no trace of parathyroid tissue in the removed gland. It must be concluded that the glandules were so injured at operation that they were rendered useless. Premonitory symptoms developed on the third day after operation. On the fifth day tetany was severe. After drachm doses of calcium lactate every three hours, cramps and spasms disappeared in six hours. Whenever the calcium was discontinued the symptoms recurred, despite the continuance of dried parathyroid gland (started on the eleventh day). Six months after operation the calcium was still necessary (20 grains twice a day) for relief of oppression in the head.

2. MacEwen's treatment of aneurysm of the aorta differs from most mechanical measures in that it produces a white, instead of a red, thrombus. This white thrombus is converted into granulation tissue, which at a still later period becomes fibrous tissue. The advantages are two: First, the narrowing of the lumen is slower and less strain is thrown upon the heart, perhaps already weak. Second, the deposition is firm and durable, and much less apt to liberate emboli. The operation consists in the introduction into the aneurysmal sac of a fine, highly polished steel needle. With this the opposite wall is very lightly scratched. A white thrombus is produced and ultimately becomes fibrous tissue.

6. Kerr reports in detail a case of volvulus of the stomach without obvious cause. At operation under cocaine a tense stomach, *not* covered with omentum, was exposed. By means of a large trocar and catheter much gas and 54 ounces of fluid were evacuated. The opening in what was supposed to be the anterior wall of an acutely dilated stomach was sutured with silk and the abdomen closed. Autopsy revealed a markedly dilated stomach completely inverted, with gastro colic omentum torn free from the greater curvature and the transverse colon lying below the stomach. Kerr has found only eight cases of true idiopathic gastric volvulus in the literature, and of these he gives epitomies. Symptomatology and diagnosis are considered.

14. Monks describes a method of tying knots of ligatures and sutures with one hand, devised by him about twenty years ago. Its execution is simple, and with practice may be speedy. The nine illustrations clearly show the several manoeuvres. [T. W. H.]

Obituary.

RIGHT HON. LORD BALTHAZAR WALTER FOSTER, P.C., LL.D., D.C.L., M.D., F.R.C.P., BARON ILKESTON.

Dr. Balthazar Walter Foster, who died in London on Jan. 31, was born at Cambridge, England, on July 17, 1840. He was educated at Drogheda Grammar School, and at Trinity College, Dublin, where he qualified as L.R.C.P. and S. in 1860. He immediately became assistant physician to Queen's College Hospital, Birmingham, and in 1864 was appointed professor of anatomy at Queen's College. In 1868 he became physician to the Birmingham General Hospital, a position which he held until 1890. He took an active part in promoting the amalgamation of Queen's College and Sydenham College, Birmingham, and in 1869 was elected professor of medicine in Birmingham University. He was also a founder of the Birmingham Medical Institute.

After twenty years of active professional life, during which he served as a member of the editorial staff of the *Lancet*, and was the author of numerous medical articles, particularly upon cardiac disease, Dr. Foster entered politics. In 1885 he was elected to Parliament as member for the city of Chester, and immediately became a leader in legislation associated with matters pertaining to the public health. He was knighted in 1886. From 1892 to 1895 Sir Walter Foster was parliamentary secretary to the Local Government Board, where he performed important duty in dealing with the invasions of Asiatic cholera which menaced England during that time. For his services in this position he was awarded in 1897 a gold medal "for distinguished merit," by the British Medi-

cal Association. In 1910 he was raised to the peerage with the title of Baron Ilkeston.

Lord Ilkeston was the second medical peer in Great Britain, his only predecessor being Baron Lister; and his death removes from the House of Lords its only remaining representative of the medical profession. He is succeeded in the barony by his only surviving son.

Miscellany.

REPORT ON TUBERCULOSIS.

THE recently published ninth annual report of the Boston Association for the Relief and Control of Tuberculosis records the activities of that organization for the year ending Oct. 31, 1912. A particularly interesting feature of this report consists of three maps, showing the death-rate from tuberculosis during the periods 1885 to 1890, 1901 to 1903, and 1911.

"In the 1885 to 1890 period the highest rate was 58.7 deaths per 10,000 inhabitants in Ward 13, South Boston, and the lowest rate 9.36, in that section known as Beacon Hill.

In the 1901 to 1903 period the highest rate was 39.39 in Ward 7, that section between the North End and the South Bay, while the lowest rate, in Ward 10, or part of the Back Bay, was 12-13.

The 1911 period finds the highest rate shifted to Charlestown, where Ward 3 shows a rate of 25.86, while the lowest rate, 7.66, is found in the Back Bay, Ward 11.

These maps are shaded and show in a graphic way the gradual but very decided decrease of the high death-rates from consumption all over the city. But a study of the 1911 map indicates the need of continued anti-tuberculosis work in Charlestown and also the South Bay region.

The report also describes the educational work done by the Association through the means of lectures, distribution of literature and exhibits, a total of 384 illustrated lectures having been given to 152,000 persons. Most of these were delivered in 34 of the 48 motion picture theatres, others as a part of the Evening High School course. At these lectures 73,000 pieces of literature were given away. The exhibit has been in constant use during the year and was shown in public libraries, settlements and dispensaries.

An important piece of work described in the report is that concerned with legislation. The Association has kept in close touch with 49 bills relating to the improvement and maintenance of State sanatoria and hospitals, to public health, and to housing measures. Twenty-nine of these bills were approved by the Association and 8 of them became laws. Not one of those disapproved by the Association passed the Legislature.

An investigation of tuberculosis in children was made under the direction of a Special Committee, who recommend:—

That this Association coöperate with the Board of Health and its department of school hygiene, with special reference to the question of tuberculosis. It is this department of the Board of Health that carries out a complete physical examination of all the school children; and if it has the support and encouragement of this Association, more and more satisfactory results will be attained in the most practical manner. That all cases of tuberculosis among school children reported to the Board of Health be made known to its department of school hygiene, and by that department each case be reported to the school physician and master of the school which the individual child attends. That a child reported as having active pulmonary tuberculosis be removed at once from school.

That the Consumptives' Hospital Department assume the care of these children and make suitable provision for them. That the children's wards at Mattapan take care of such as these as need whole-time hospital treatment, separate wards being used for early and advanced cases. That the Boston Consumptives' Hospital Department establish children's day camps in suitable sections of the city for the care of those not needing whole-time hospital treatment, these children's day camps being so located as to avoid the long journeys which have been shown to be harmful to children.

Prendergast Camp, where patients discharged from sanatoria and patients awaiting admission to sanatoria can live in the open air, has cared for 44 persons during the year.

Two pieces of work were undertaken during the year. A Domestic Science Visitor was employed to teach economic housekeeping and the proper purchasing and preparation of food in families where there is tuberculosis. To assist in this piece of work a Housekeeping Centre has been established at 139 Roxbury Street.

The Association has loaned to the Trustees of the Massachusetts Hospital for Consumptives a trained nurse, who is also a social worker, to follow up patients discharged from the State Sanatoria and hospitals in order to find out if full value is being received for the money and effort expended by the State and local communities to benefit these patients. This worker has visited 246 ex-patients and has already shown very decidedly the need of the after-care work."

Correspondence.

THE BACTERIA COUNT BILL.

Brockton, Mass., Feb. 21, 1913.

Mr. Editor: In this week's JOURNAL I note that certain comment entitled, "Relative Merits of the Milk Bills" from the reading of which an altogether erroneous impression of the bacteria count bill, Senate 44, might be obtained. Trusting that your sense of fairness will dictate publication of this letter I will endeavor to let in a little light on the subject.

In the first place the bill is the official bill of the Massachusetts Association of Boards of Health which by vote of association, without a dissenting voice, the Legislative Committee were instructed to introduce at this session of the Legislature. In calling it the "Producers' Bill" it would seem that information concerning it had been secured second-hand as the bill is plainly labelled as petitioned for by the Massachusetts Association of Boards of Health.

Further on reference is made to its being unfortunate that "the culture media specified in this bill is so acid as greatly to retard the growth of bacteria and lower all counts." From just what source this information proceeded would be interesting to learn as the reaction specified is that of the Committee on Standard Methods of Bacterial Milk Analysis of the American Public Health Association, and was determined on only after most exhaustive testing of the various degrees of acidity by the members of the committee.

Dr. F. H. Slack, late Director of the Boston Board of Health Laboratory, and present secretary of the Boston Board of Health, who was chairman of the above committee, today reaffirmed to me his conviction that the acidity named is the proper one to secure the maximum growth of bacteria. Dr. Slack's position as an authority on the technic of bacterial milk examination is so well established as to require no further comment on my part.

May I be allowed, however, to express an opinion that I am informed has taken hold of many hearers of the arguments for proposed milk legislation at the State House these last few years, which is: the less a person knows of the practical side of milk production the more enthusiastic he or she seems regarding the merits of bills setting forth in elaborate detail schemes for supervision of the milk industry.

Senate Bill 44 seeks to provide a state standard for cleanliness in milk. For years we have had upon the statute books a law fixing certain standards of solids and fats for milk intended for sale. This law did not specify that a man must keep so many Jerseys, so many Guernseys, so many Holsteins and so many brindle cows in order to reach this standard; it simply established one and told the producers to reach it.

The production of clean milk is an analogous proposition; anyone who has had sufficient practical experience knows that there are many dairies fixed up in "show" style the product of which does not begin to compare in point of cleanliness with that of many less pretentious dairies. A standard of cleanliness will harm so deserving person for, as Dr. North has repeatedly said, "the proof of the pudding is in the eating."

Also Senate Bill 44 calls for enforcement of its provisions by the State Board of Health who will thus be enabled to proceed against dirty milk whether produced in Massachusetts or brought into the state.

With two quotations, I will close—the first from the resolutions adopted by the New York Milk Committee in 1912: "That the bacteria count of milk indicates its quality and history as it is modified by unusual contamination, improper handling, dirt, improper refrigeration, or age. The high count indicates the necessity of investigation and inspection in order that remedies may be applied."

The second as bearing upon the claims of some who affect to believe that dairy and farm inspections are the panacea. From an article by Prof. M. J. Rosenau, Prof. of Preventive Medicine and Hygiene at Harvard Medical School, published in a bulletin of the Public Health and Marine Hospital Service: "We can scarcely conceive of an inspection so thorough and constant as to prevent milk occasionally becoming contaminated with the germs of typhoid, diphtheria, scarlet fever, dysentery, tuberculosis, etc."

Yours very truly,

GEORGE E. BOLLING,
Chairman Legislative Committee,
Mass. Asso. of Boards of Health.

WORKMEN'S COMPENSATION.

Lawrence, Mass., Feb. 21, 1913.

Mr. Editor: In the second paragraph of the admirable editorial on "National Insurance and the Workmen's Compensation Act" in the issue of Feb. 20, page 285, is an error in statement regarding the most fundamental point where the act affects the physician.

This sentence reads as follows, "By the terms of this act, injured employees are left free to obtain medical care from whatever source they see fit."

Section 5, Part 2, of the Workmen's Compensation Act is as follows: "During the first two weeks after injury, the association *shall furnish* reasonable medical and hospital services and medicines where they are needed."

The word association evidently refers to the Massachusetts Employees' Insurance Association which was created by the act. All the insurance companies admitted to do industrial accident business are now included in this term. The insurance companies contend that if the injured employee does not go where the insurance company has contracted for him they are not liable for the medical bills. At a hearing of contested medical bills the writer understood the Industrial Accident Board to say they would approve no bills where the employee did not go where he was directed, except in individual exceptional cases.

The insurance companies have brought several such bills before the board upon the ground that the employee had not gone to the hospital. Some of these have been approved as being under exceptional circumstances and others, I understand, have been disapproved.

That the above construing of the words, *shall furnish*, has been accepted by the employee as well as by the insurance companies as meaning that the employee must go where the employer and insurance company send him or forfeit his right to medical attendance, is shown by the amendment offered at this legislature providing the substitution of the words, "*be liable for*" for "*shall furnish*." Other amendments to produce the same result, *i.e.* freedom of choice of medical attendance were also offered. None of these amendments were offered by the medical profession although approved by the Essex North District as affording an opportunity of protest against the attempt of certain insurance companies to force the people, whose medical bills they had assumed the liability for, into charity hospitals.

As the condition exists now the home office of an insurance company, which may be in London, has been given control over the wills and bodies of the workmen in Massachusetts.

Some of the insurance companies have and some have not attempted to exercise this power conferred upon them.

Very respectfully yours,

W. H. MERRILL, M.D.

WORKMEN'S COMPENSATION.

THE COMMONWEALTH OF MASSACHUSETTS.
INDUSTRIAL ACCIDENT BOARD.

Boston, Feb. 26, 1913.

Mr. Editor: I read the editorial in the JOURNAL of Feb. 20, entitled, "National Insurance and Workmen's Compensation," and note that in paragraph two you say, "by the terms of this act injured employees are left free to obtain medical care from whatever source they see fit."

The exact contrary of this is true, Section 5, Part II, Workmen's Compensation Act says: "During the first two weeks after the injury, the association *shall* furnish reasonable medical and hospital services, and medicines when they are needed."

Bulletin No. 2, Decisions and Rulings of the Industrial Accident Board, page 11, has the following para-

graph, under Section 5, Part II, which reads, "during the first two weeks after the injury the association shall furnish reasonable medical and hospital services," in ordinary cases the insurance company has the right to elect what doctor and at what hospital the injured employee shall be treated. It may happen, as it has in many cases, that because of sufficient reasons growing out of the nature of the injury, personal dislike of the doctor or upon other grounds, the Industrial Accident Board will approve a reasonable bill where services were rendered by a physician selected either by the employee or employer.

We enclose herewith a copy of the law and Bulletin No. 2, and No. 3 of the Industrial Accident Board, and in Bulletin No. 3 call attention to the paragraphs marked on pages 8 and 9, 12 and 13.

The Industrial Accident Board is doing its utmost to adjust this question of medical fees under the law in a manner which will be fair to the employers and insurance companies and at the same time be just and satisfactory to employees, and there is some evidence that we are succeeding, in part at least, in this effort.

We feel also that as you say, in your editorial, "the doctors recognize this act as a broad and wise measure for human protection and benefit" and we will be very glad to co-operate with you to the end that there may be no misunderstanding as to its proper enforcement.

Yours very truly,

JAMES B. CARROLL,
Chairman.

NOTICES.

INSTRUCTOR FOR MIRAJ MEDICAL SCHOOL.—A teacher of physiology, chemistry, physics, biology and bacteriology is needed to work in connection with the Presbyterian Mission Hospital Medical School and Leper Asylum at Miraj, West India. A man who has a knowledge of x-ray work is preferred.

The medical graduate who is appointed to this position will have opportunities for practice as an assistant in medicine and surgery, though the major part of his time will be taken up with teaching.

A man who is looking forward to permanent service as a medical missionary, and who proves satisfactory in this position, would have opportunity for locating permanently if he desired to do so.

Traveling expenses and living quarters are provided in addition to $50 monthly salary. The terms: a three year appointment with the privilege of renewal of contract with two or three additional years, if mutually agreeable.

Men who wish to investigate this opening should send full particulars regarding their qualifications to Mr. Wilbert B. Smith, 600 Lexington Avenue, New York City.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 22, 1913.

STRAETEN, R. J., passed assistant surgeon. Detached from the *Florida* and order to the *Tonopah*.

BENTON, F. L., surgeon. Detached from the *Delaware* and ordered to duty with marines on army transport *Meade*.

MUNSON, F. M., passed assistant surgeon. Detached from navy recruiting station, Hartford, Ct., and ordered to duty with marines on army transport *Meade*.

HOFF, E. P., passed assistant surgeon. Detached from naval hospital, New York, N. Y., and ordered to duty with marines on the *Prairie*.

POST, D. C., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Navy Yard, New York.

CHARTLON, C. F., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to navy recruiting station, Hartford, Ct.

DRAGOO, C. H., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Meade*.

FINDEISEN, W. E., WOOD, C. C., assistant surgeons. Detached from Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Prairie*.

CRANDALL, J. W., acting assistant dental surgeon. Appointed from Feb. 7, 1913.

HARVEY, H. E., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 22, and ordered to the *Solace*.

TENNENT, E. H., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 24 and ordered to receiving ship, *Norfolk*.

BROWN, J. L., acting assistant surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 24, ordered to naval training station, Newport.

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—A meeting will be held Wednesday, March 12, at 8.15, in Cotillion Hall, 311 Main Street, Worcester. Open to the public. Subject: The Problem of the Mentally Deficient. Illustrated paper by Dr. Walter E. Fernald, Supt. Massachusetts School for the Feeble-Minded. Discussion by Dr. M. J. O'Meara and Dr. B. T. Burley.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—Meeting at Boston Art Club, March 11, 1913. Subject: "Industrial Compensation Act." This act has been in operation in Massachusetts for nearly one year. Hon. James B. Carroll, Chairman of the State Board, will present the subject. All medical men interested are invited.

Dinner at 7 p. m. Discussion at 8 p. m.

EDWARD B. LANE, M.D., *President.*
JAMES H. STEVENS, M.D., *Secretary.*

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 22, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	19	6
Chicago	814	245	Waltham	10	3
Philadelphia	—	—	Brookline	12	1
St Louis	—	—	Chicopee	15	—
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	4	2
Buffalo	—	—	North Adams	10	2
Pittsburgh	—	—	Northampton	14	2
Cincinnati	—	—	Beverly	7	1
Milwaukee	—	—	Revere	4	1
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	5	—
Boston	263	58	Westfield	8	3
Worcester	61	19	Peabody	1	—
Fall River	53	26	Melrose	2	—
Lowell	42	9	Woburn	—	—
Cambridge	—	—	Newburyport	4	2
New Bedford	25	7	Gardner	1	—
Lynn	22	2	Marlboro	3	1
Springfield	36	8	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	27	4	Adams	—	—
Holyoke	21	15	Framingham	1	—
Brockton	17	5	Weymouth	1	—
Malden	12	2	Watertown	3	3
Haverhill	20	3	Southbridge	3	1
Salem	18	3	Plymouth	—	—
Newton	19	3	Webster	—	—
Pitchburg	9	5	Methuen	—	—
Taunton	13	1	Wakefield	—	—
Everett	3	3	Arlington	3	—
Quincy	—	—	Greenfield	4	1
Chelsea	16	5	Winthrop	—	—

Original Articles.

URETERAL OBSTRUCTION.

BY BENJAMIN TENNEY, M.D., BOSTON.

Surgeon to the Boston Dispensary and the Berkley Infirmary.

THAT there is such a mechanical condition as ureteral obstruction all admit. That obstruction may be due to a variety of causes and may be either total or partial, permanent or intermittent is equally well known and sometimes forgotten. That a one sided pain in the pelvis, abdomen or back, with any sort of variation from the normal in the bladder action may mean ureteral obstruction, is either unknown to some operators or disregarded at times. Yet there is a group of symptoms which should compel all operators to seriously consider ureteral obstruction as their cause.

CASE 1. Mrs. E. W. A., 37. Her appendix was removed without drainage in 1900. She had one child in 1902. No edema or known albumenuria during pregnancy. For a year before the appendectomy she had attacks of severe pain in her back and right side low down, and since the operation she has had other attacks which she regards as of the same character. In 1907 she noticed intermittent tumor below her left ribs associated with backache and nausea. In 1909 she began to have frequent urination with pain during and after urination. In 1910 and since, she has had difficulty in retaining urine and has worn a napkin constantly by day and occasionally would wet herself at night. She has talked with physicians about her incontinence, about the discomfort in her lower right side, and about the discomfort and swelling on her left. Besides her appendectomy she had received some vaginal treatment and various bottles and pills. Vaginal examination negative as regards tumor, and her description of tenderness seemed not fully reliable. Radiographs by Dr. A. W. George negative. She was so lacking in self control that cystoscopy was done under a general anesthetic. The bladder leaked around the cystoscope when more than seven ounces of fluid were injected. She showed the peculiar red outside-of-a-honey-comb appearance in the trigone which is often associated with long standing irritation, and this led up to the orifice of the left ureter. There was some prominence of the muscle bundles in the walls and a pouting of the orifice of the left ureter. There was no tumor or foreign body. Both ureteral catheters passed easily. Urine from each was practically clear. The left showed more reds than the right, more bacilli and a few short chain streptococci, but both were albumen free and the rate of flow was equal. No tubercle bacilli in the sediment. For a few days after the examination and while lying in bed she had increase of pain on the left side with moderate ureteral tenderness, especially at the bladder end. My diagnosis was ureteral obstruction on the left and unknown condition in the right pelvis. She was operated upon at the Addison Gilbert Hospital in Gloucester, June 11, 1912, Dr. H. M. Chase assisting and Dr. A. M. Dodge anesthetist. A suprapubic incision found the uterus low down in the pelvis and swung to the right, which may have made a kink in the right ureter as it passes between the layers of the broad ligament. The tubes were a little thickened at their outer ends. Ovaries normal; no adhesions. Both ureters were examined by finger and by the eye from the bladder as far up as possible. The left was thicker. Her uterus was pulled to the median line and sewed into the incision which was closed. Another incision was made in the left loin and a large kidney was delivered, which disclosed a vessel looped around the ureter at the level of the lower pole. This vessel was cut between two ligatures, the kidney suspended and the wound closed. She has gained twenty-five pounds, and is free of pain. For the past two months she has been free of leakage and urination has been normal though her pyelitis has not fully cleared up.

CASE 2. Miss C. B. C. consulted me in the fall of 1908 for urinary frequency associated with rectal tenesmus and left sided pain which had troubled her at intervals for more than thirty years. She had previously gone through four operations here and in Europe, and had received every sort of medical treatment and even attempted to wear a steel apparatus to correct some supposed malposition in the spine. Some relief followed her final laparotomy, but the pain in her left side and the vesical and rectal tenesmus were unaffected. Incidental to all her suffering and the disappointment following her operations she had fallen into invalid ways of action and thought and would pass for a neurasthenic. Also, she had lost faith in medicine and almost doubted surgery. Radiographs by Dr. Percy Brown showed no abnormality. There was no blood in her stools. Urine was many times found of low specific gravity, sometimes showing faint traces of albumen and always having sediment which showed long bacilli, red and white corpuscles, round and oval epithelium, hyaline casts, and sometimes crystals. No tubercle bacilli in the sediment or by guinea-pig test. Left kidney region and left ureteral insertion were much more tender than right. Cystoscopic examination under ether showed a bladder holding five ounces, with prominent muscle bundles and redness of left ureteral opening and trigone. Ureteral catheters passed easily and from the left side drew a moderately bloody urine, showing also masses of fatty cells, hyaline casts, mucus, and many bacteria, chiefly bacilli. From the right came an equal amount of urine with some red blood cells, no fatty cells, few bacteria and no bacilli or casts. The operation was done at her home with the assistance of Dr. Chase. Her left kidney was delivered and an artery which crossed the ureter a little below the hilum was cut between two ligatures. The pedicle was short and the kidney was dropped without fixation. Since then she has had no further left sided pain, vesical or rectal tenesmus, and has resumed her place in society.

CASE 3, referred by Dr. Robert Bonney of East Boston and Dr. Smith of Somerville, was Mrs. W. K. McD. She was operated upon for appendicitis in 1905, with drainage for a few days. Pain continued at intervals in the right side and a year later she had nausea and vomiting with temperature, and was again opened over the appendix and drained for a few days. Pain and digestive troubles

led to a third operation for a repair of hernia following the first two. At my examination she was tender at the right ureteral insertion and along the whole course of her right ureter up to and including the right kidney. No thickening of the right ureter made out. She was having pain and temperature of 100 degrees at the time of my visit. Cystoscopic examination found a normal looking bladder except for a gaping right ureter and a red trigone. Ureter catheters were painful on both sides, but more in her right ureter, which was partially obstructed about eight inches up. Urine from the right showed considerable fatty epithelium, many leucocytes, rare red cells and profuse bacteria, mostly bacilli. Urine from her left showed few bacteria, few epithelial cells and no red cells. Following the examination she had some days of severe pain on the right with vomiting, chills and fever. She was operated upon September, 1912, at the Boothby Hospital. Exposure showed a band across the ureter apparently not connected with the renal vessels, and a very movable kidney. The band was cut and the kidney was sutured as high as possible. In repairing a partial recurrence of the hernia the cecum was examined and found entirely free from all adhesions, and the scar of the appendix removal was sound and smooth. She is so far free from unpleasant urinary symptoms and from pain in her right side.

CASE 4. Another patient of this type was a Miss M. B. P., a trained nurse, referred to me by Dr. C. O. Kepler. As a child she had enuresis, and always one or more night urines. Her right sided pain began at 15 years. She had two attacks relieved by morphine in 1899. Her appendix was removed without drainage in 1902 and in 1907 she lost a right ovary but her attacks of pain continued. Rarely she was incontinent. Radiographs negative. Vaginal examination found a tender right ureteral insertion. *No tenderness* over the kidneys. Cystoscopy showed a reddened trigone, a red and thickened right ureteral orifice, and some prominent muscle bundles. My notes of the urine examination are lacking. At the Deaconess Hospital in April, 1910, Dr. C. O. Kepler assisting, her right kidney was exposed and the ureter freed as far down as possible through the loin incision. No band or aberrant vessel was seen but one was ruptured with the finger above the pelvic brim. The kidney was large and freely movable and was anchored high with the lower pole swung out to prevent a kink at the beginning of the ureter, as I was not sure whether her obstruction occurred here or lower down. Her recovery was satisfactory and a recent letter says, "I think you may call my case a complete success." She is in active service for a large mill corporation and almost constantly on her feet for long hours.

CASE 5. Another patient was Miss B. E. H., with a history of good health up to 1903, when she began to lose weight and was treated by one or two men for phthisis, then by another man who "replaced her uterus" at intervals, then by another who removed her appendix and later repaired a small right inguinal hernia. All this time she had the right sided pain and more or less frequency of urination. Some time after her last operation she had begun vomiting at intervals and had been extensively examined for intestinal obstruction. When I saw her she had a daily sequence of symptoms. She would rise feeling fairly well. By the time she was dressed the ache would begin and usually she would vomit after breakfast. Then she would have a miserable day until she could lie down. After a variable time her discomfort would suddenly disappear and she would feel the need of urinating. Examination found general ptosis. Right kidney could be easily held and was not tender at my examination. Right ureteral insertion very tender. Cystoscopy found a normal bladder and normal ureteral openings. Ureteral catheters passed easily and delivered clear urine. She had lost twenty pounds and was distinctly neurasthenic. She was operated upon at the Deaconess Hospital in April, 1912, Dr. C. O. Kepler assisting, and a normal appearing kidney was easily delivered with the longest pedicle I have ever seen. There were no bands visible or palpable across the ureter but the kidney pelvis seemed unusually large and the ureter came off above its usual point. Rotating the lower pole out brought the ureter to the lowest part of the pelvis and the kidney was attached high in this position. Her convalescence was slow but her nausea and urinary symptoms and right sided pain are now gone, and she is again in active life, weighing more than ever before.

CASE 6. Obstruction by ureteral stone is another type. One case of this sort was reported by me in 1904, a nurse who had a double ovariotomy in 1893, after several years of invalidism. Some relief followed this, until she had an attack of left renal colic in 1901, followed by three more the next year. During the attacks the pain extended downwards into the bladder, but was never referred to any other location than the urinary tract. Nausea always followed the attacks. She usually had a time of "not feeling just right" for an hour or so before the colic began.

Following the attack of December, 1901, she had some hematuria. At time of examination, January, 1903, the urine was 1002 clear, and showed almost no sediment with the centrifuge, but there were a few epithelial cells and some red and white corpuscles. There was decided tenderness along the line of the left ureter, from the left of the umbilicus down. Vaginal and rectal examinations showed nothing abnormal except marked tenderness at entrance of left ureter into the bladder. An attempt was made to catheterize the ureters without anesthesia, but the posterior wall of the bladder was held back so that the orifices of the ureters could not be made out, even with the knee chest position. An x-ray examination was suggested but refused by the patient. In January, 1903, operation found a ureteral stone just below the brim of the pelvis, which was pushed up and removed through a pyelotomy wound. There has been no recurrence of her left sided pain since her recovery from the operation. Dr. H. M. Chase assisting.

CASE 7. Another case was a man of 36, referred by Dr. H. W. Goodall on account of painless hematuria without symptoms in July, 1912. There was no pain or previous hematuria or night urination or frequency by day. The prostate was uniformly tender and larger than usual. Vesicles normal to touch. Cystoscopy found nothing abnormal except rather free bleeding from the prostatic urethra. There was no visible and no microscopic blood in either catheter urine though there was in the mixed

urine drawn before the cystoscope was passed. It was thought probable that his hematuria was prostatic and due to marital habits. In October he came again with a typical attack of renal colic, great pain, vomiting, and general prostration. Three days later Dr. A. W. George found a shadow of a stone at the upper end of his right ureter and a week after this at the Boothby Hospital, assisted by Dr. Chase, I removed a small stone from the pelvis of the kidney. His kidney had a pedicle so short that I could not deliver it, and the stone was removed by a pair of blunt forceps thrust through the kidney substance. The wound was drained and he left the hospital in two weeks with a small sinus, which closed in another week. He has had a slight colic once since, probably due to a piece of tissue passing down the ureter, but now is apparently all right. The essential difference between this type of obstruction and those before mentioned seems to be the absence of any constant and regular disturbance up to the time when infection takes place behind the obstruction. Before that we find occasional hematuria and occasional colic with health between. After infection occurs the usual symptoms of pyelitis and ureteritis occur.

CASE 8. Mrs. G. S., 28, was referred to me by her physician, who had previously operated for some tubal condition in January, 1908. She never was incontinent, even as a child. From the age of fifteen she had pain in her right side. At eighteen she was passing water with annoying frequency and getting up as many as eight times at night. At twenty she was treated for "inflammation of the bladder." During her only pregnancy she had constant nausea and frequent urination. She was operated upon in 1907, losing her right tube and ovary. At that time the operator saw a cyst-like looking structure behind the cecum which leaked a considerable quantity of clear fluid when punctured. Twelve days after operation he noticed that the skin incision was bulging and reopened it, letting out an ounce or more of clear fluid, and this continued to flow, drop by drop, until I saw her in January, 1908. At this time there was a decidedly urinous odor to the fluid, which at first was free of urea as well as odorless. Cystoscopy found a normal looking bladder. The left ureteral catheter passed easily and delivered clear urine. The right stopped at five inches, delivered no fluid, and a solution of methyl blue returned without coloring the fluid which dripped from her abdominal scar. She made no complaint of pain or urinary symptoms at this time. There was no tenderness over her right kidney, which could be held down and did not feel greatly enlarged. She consented to a nephrectomy if necessary, and the abdominal route was chosen to give better opportunity for examining her right ureter. She was operated upon in February, 1908, at the Deaconess Hospital. Her right kidney was stretched out into a sac which was partly filled with fluid. Her right ureter was traced down to the pelvic brim without locating any obstruction. The nephrectomy was as usual, and the ureteral stump was met by a drain passing through a stab wound in the back. Her appendix was removed, the colon replaced and the abdominal wound was closed. The capacity of the hydronephrotic sac was 22 ounces. Her recovery was rapid and uneventful. She was seen in November, 1912, and says she is as well as she has been at any time of her life. In 1909 she had a group of symptoms suggesting a gastric ulcer, which seems quiet at present. She has occasional right sided discomfort in the morning, but no urinary symptoms whatever. She is a little tender over the region of the ureteral stump, and it is possible that she may have a calculus imbedded there. This case is unusual, and the course taken by the urine in dissecting its way outside the peritoneum up to the abdominal wound, from which it dropped freely, is extraordinary. The patient counted the drops for a half hour and insisted that the fistula was excreting two quarts a day. The drip stopped at once after the nephrectomy and the fistula closed within a day or two.

CASE 9. G. S. W. was seen by me with Dr. C. O. Kepler, with a probable diagnosis of hydronephrosis. He had a history of discomfort and occasional pain in his right side, associated with nausea for several years. His weight had fallen off and he had become irritable and apprehensive. Three months before coming to Boston his appendix had been removed without affecting his symptoms in any way. Examination showed a large movable tumor below his ribs which was moderately sensitive and elastic. No cystoscopic examination was made. He was operated upon at the Besse Hospital in 1911, Dr. Kepler assisting. The abdominal route was chosen, the presence of a normal feeling left kidney was determined and also the right ureter was traced down into the pelvis without discovering any concretion. The right kidney was replaced by a sac with a capacity of thirty ounces and was easily removed from behind the colon without leakage or hemorrhage. The sac contained clear fluid, which was lost before there was opportunity for examination. The kidney substance was stretched out over a part of the sac and in no place was it more than a half inch thick. The patient made a rapid recovery and remains free of pain and nausea, and without urinary symptoms.

CASE 10. N. A. M., 35, single, was referred to me by Dr. George H. Bowles in 1908. In 1900 she had a slow healing sore on her lip which was supposed to be specific and for which she had taken treatment for five years. In 1903 she began to have frequent and imperative urination with pain in right side and had both tubes and one ovary removed, without relieving the symptoms. In 1908 she was urinating eight to ten times every night, wearing a urinal by day, and having pain at the end of every urination. Bladder capacity was three ounces. She was tender over the right kidney and the whole length of the right ureter. Two separate inoculations of her urinary sediment into guinea-pigs gave negative results. Her temperature over a period of some weeks never rose above 99 degrees, but varied between that figure and 95 degrees, producing a tubercular looking chart below the normal line. Cystoscopy was difficult on account of her contracted bladder, but showed a golf hole right ureter opening which accepted only three inches of a ureteral catheter. The left delivered clear urine. Radiographs showed nothing on her right but a shadow in the region of her left kidney pelvis which was produced by calcified lymph nodes discovered at operation. A small tubercular right kidney was removed in August, 1908, at the Boothby Hospital, Dr. H. M. Chase assisting, and her pain stopped at once. Her bladder capacity has slowly increased and is now

twelve ounces, which allows her to sleep nearly all night and to dispense with the urinal.

These ten cases have been selected from my records because each illustrates some type of ureteral obstruction and there is some similarity of symptoms whether we call them cases of hydronephrosis, intermittent hydronephrosis, renal or ureteral calculus, pyelitis, or tuberculosis of the kidney. So far as symptoms go all these conditions produced ureteral obstruction. Ureteral obstruction produced one sided pain, and pain is what drove them all to seek relief. If a patient with obstructed ureter continues to have pain after an operation which may have removed a chronic appendix or a cystic ovary or repaired some damage of childbirth, the patient has disappointment added to the pain and the operator has chagrin for his share. While permanent hydronephrosis and obstructing stones are not seen daily in any clinic, cases with some form of ureteral obstruction are constantly appearing among patients who come seeking relief from pain. Two symptoms appear in almost every condition which obstructs a ureter. One is pain between the point of obstruction and the tenth rib, on the obstructed side. The pain varies from a dull ache to agony and may produce anything from nervous irritability to vomiting and unconsciousness. This pain is sometimes increased by motion, as in stone cases, sometimes brought on by a change from the horizontal to the upright position, as in cases with ureteral kink, and sometimes appears without regard to either, as in pus or bleeding kidneys when the patient's pain comes and goes quickly with the passage of some fibrin mass through the ureter. Pain is present when there is back pressure in the kidney and may be associated with vomiting and fever, as in Case 6, or it may be associated with vomiting and a normal temperature, as in Case 5, or there may be subnormal temperature, as in Case 10. The pain is said to radiate along the affected side down to the penis or vagina or leg, but my patients have had most of their pain in the back in the region of the twelfth rib. Radiation—unless pelvic pain be considered such—has been uncommon in my cases. Cases with pain on the unaffected side have been reported on good authority. The pain may be recent, as in Case 7, or of long standing, as in Case 2, where "side ache" was remembered from childhood on. Pain is what the patient describes without examination. Tenderness may correspond in location or differ. When a patient is in pain from ureteral obstruction he is also tender over the affected kidney. When he is not in pain the tenderness may and often does disappear. In women the ureteral insertion, which can almost always be felt through the vagina, will be found sensitive if there is infection behind a point of obstruction, and often while the infection remains a bacteriuria.

No one who has seen the suffering of a patient whose ureter has been plugged by a stone or a clot, or who has distended the kidney pelvis in the course of his examination can doubt that such back pressure does cause real pain. Pain was present in each of these ten cases and was the cause of their seeking relief.

The other constant symptom has been an alteration from the normal habits of urination. We may find increased frequency, urgency, incontinence, or the necessity of repeated attempts before the desire passes away. The presence of any one of these symptoms is a plain warning that something is wrong in the urinary tract—not necessarily in the kidney—and calls for further study if we are ambitious for a full knowledge of our patients' bodies. The readiness to make a diagnosis of "cystitis" on these symptoms and to administer some one or more of the thirty remedies for "catarrh of the bladder" stands in the way of early diagnosis and prompt relief from most of the surgical diseases of the kidney and ureter. Primary disease of the bladder is certainly as rare as primary disease of the stomach, and the unconfirmed diagnosis of "cystitis" should go the way of "gastritis" into the museum of cloaks to hide our ignorance.

THE CONSERVATIVE TREATMENT OF TOXÆMIA OF PREGNANCY WITH CONVULSIONS.

BY CHARLES M. GREEN, M.D., BOSTON.

(From the Gynecological Clinic of the Boston City Hospital.)

FOR some time it has seemed to the writer that in this impatient surgical age there is a too prevalent tendency, in the presence of the gravest obstetrical emergency generally known as, but inadvisably named, eclampsia, to proceed too hastily to forced delivery, whether the convulsions first occur before or during labor. Since it is now generally accepted that the ovum or fœtus is the source of the toxines, the effects of which so often culminate in convulsions before, during, or after delivery, and since the death of the fœtus in utero often is followed by an abatement of the convulsive seizures, it would seem logical to proceed to empty the uterus as the first step in the treatment. But whether the toxines are of fœtal origin or whether they are the product of imperfect maternal metabolism and non-elimination of waste products, the fact remains that the toxæmic woman is ill-prepared to resist the shock and trauma of any surgical procedure. Except in the presence of grave surgical emergency, such as fulminating appendicitis or serious bodily injury, no surgeon would operate on a patient with alcoholic toxæmia, nor does the internist look to see the chronic alcoholic survive the supervening toxines of grave general infection, such as pneumonia. Save in exceptional cases, therefore, it would seem more logical to postpone active surgical treatment for a reasonable

time, until by active eliminative measures the toxæmic gravida is better prepared to withstand the added strain of delivery; and the writer believes that when the shock and trauma of the *accouchement forcé* are hastily imposed upon a nervous system already reacting to toxæmic irritation, the *coup de grâce* is not infrequently given to women who under more conservative treatment might recover. Moreover, under successfully applied eliminative therapeusis, the cervix and lower uterine segment often soften and expand to a degree that the woman speedily delivers herself under the usually exaggerated uterine contractions of the convulsive attack, or sufficiently to permit delivery without undue shock or injury. After the cervix is softened and somewhat dilated, it is not difficult to procure by digital dilatation a sufficient expansion for the delivery of the small, non-viable fœtus, making use of embryotomy, if necessary; and when the fœtus is developed to a viable age and is alive, the use of a suitable hydrostatic rubber bag very generally results in a dilatation sufficient to permit safe delivery by forceps or podalic version.

Whatever the obstetric treatment may be, the fœtal mortality is high, even 50%. In 40 cases, recently quoted by Hirst, in which abdominal Cæsarean section was performed for maternal toxæmic convulsions, there were 18 fœtal deaths; and yet this method of delivery would seem to afford the best fœtal prognosis. The fact is, of course, that the fœtus very generally participates in the maternal toxæmia, and even if viable, as it often is not, and delivered alive, it frequently succumbs for that reason, and even exhibits typical toxæmic convulsions. Moreover, as is well known, the premature baby does not well endure the strain of operative delivery, and even after instrumental cervical dilatation or vaginal Cæsarean section, delivery must be effected by operative procedure. Under these circumstances it would seem that in deciding on the line of treatment to be pursued in a given case, that which affords the best prognosis for the mother should be chosen, since that which is best for the mother is generally best for the child. An exception might be made in the case of the late primigravida, nearly at term with living baby, but with undistensible cervix and vaginal tract; in such a case, in which great parental desire may justify the possibly increased maternal risk, abdominal Cæsarean section undoubtedly affords a better prognosis for the baby than strenuous delivery by the genital tract; but the safely delivered Cæsarean baby may subsequently succumb to its toxæmic condition.

If in reasonable time the patient fails to respond to eliminative treatment and to other medical measures for the control of convulsions and the reduction of blood-pressure, if there is deep coma, cyanosis, and pulmonary œdema, resort in desperation is naturally had to emptying the uterus, by forced cervical dilatation or by vaginal Cæsarean section; in such cases, however, whatever the treatment, there is usually a lethal termination. But it has seemed to the writer that in many cases eliminative treatment fails because it is not sufficiently vigorous and persevering, and perhaps because it requires a much more exacting and protracted personal attention of the physician than does the rapid evacuation of the uterus.

The method of treatment employed by the writer is essentially as follows: First of all is given a high compound enema consisting of

Oil of turpentine	1 dram
Extract of aloes	20 grains
The white of one egg.	
Sulphate of magnesium.	
Glycerine.	
Water	of each 2 oz.

Next, the patient is given, when feasible, and it is generally feasible in hospitals, a hot water immersion bath.* Immersion needs not generally to be continued for more than a few minutes before perspiration appears on the forehead. If the patient is visibly dirty, or if sweating does not soon occur, the use of a flesh brush will promote the activity of the skin. If the pulse is weak, a stimulant is indicated before the bath. The woman is then rolled in a blanket, placed in a warmed bed, laid on a rubber blanket covered with a sheet, and another rubber blanket is spread over the extra blankets which cover her. It is well to remember that this treatment not infrequently serves to induce labor; but in the presence of convulsions the invasion of labor is to be welcomed. If the immersion bath is not available, the hot, wet pack is made use of; dry heat is much favored by some clinicians. An ice bag is applied to the head. If the patient is comatose, the stomach is washed out and there is left therein a moderate amount of water, perhaps 8 ounces, containing two ounces of Epsom salts or a like amount of castor oil, with two drops of Croton oil; if conscious, the patient can swallow the cathartic. In the presence of marked œdema it is not well to give much water at first; otherwise the conscious patient should be caused to drink freely, and bitartrate or acetate of potassium may be given to neutralize acidosis. Fluid in the form of salt solution should be given to the unconscious patient, one or two pints under the breasts, in the face of free diaphoresis and purgation; by this in-take and out-go of liquids the blood may be effectively washed of its toxines. Nitroglycerine in 1-100th grain doses is sometimes valuable to relieve blood tension and promote diaphoresis; but generally the blood tension is sufficiently reduced by the active function of skin and bowels. Veratrum viride is much approved by some authorities, but that drug and pilocarpine have both been discarded by the writer. To control convulsions and ner-

* See a paper on this therapeutic measure in the Boston Medical and Surgical Journal, vol. exliii, p. 624, for Dec. 20, 1900.

vous restlessness, morphine is used. In the event of a living, viable fœtus, and in order not to inhibit uterine contractions, it is used in moderate doses, generally not more than 1-4 grain, with subsequent 1-6 grain doses at two hour intervals, or 1-4 grain doses according to indications and results.

Meanwhile watch is kept for the invasion of labor, which quite generally supervenes. If labor is not excited by the eliminative treatment, and the toxæmia and convulsions abate, pregnancy is allowed to continue, especially when the fœtus is alive and not yet viable; if the fœtus is dead, the woman is generally allowed to await spontaneous delivery. In chronic nephritis, however, labor is quite generally induced not later than the end of the eighth month. When under eliminative treatment labor begins, as soon as the cervix is softened, effaced, and a little dilated, hydrostatic bags are used and the labor terminates unaided, or more generally is completed with forceps or version and extraction. After delivery, eliminative treatment is continued until convulsions cease and œdema disappears. Sometimes there is free post-partum bleeding, and in the presence of a persisting high blood-pressure this is regarded as a beneficent phenomenon. Reference has already been made to what must be regarded as rational treatment of severe toxæmic convulsions when the usually successful eliminative and sedative measures fail.

It is generally recognized that neither ether nor chloroform is a good anæsthetic for use in the obstetric surgery of the toxæmic parturient in convulsions, on account of the pulmonary and renal irritation of the former, and of the hepatic irritation of the latter; some authorities on this account recommend nitrous oxide gas. With this anæsthetic agent in the conditions under consideration, the writer has had insufficient experience to judge of its merits; but for the last four years he has used anæsthol, consisting of ether 46 parts, chloroform 37 parts, and ethyl chloride 17 parts, and has been well satisfied with its effects.

The section of the Boston City Hospital for diseases of women is intended primarily and chiefly for gynæcological surgery; but a considerable number of cases of pathological obstetrics are necessarily received during the year, and in the three and one-half months immediately preceding the time of this writing ten successive cases of pregnancy toxæmia with convulsions have come under the writer's observation and treatment. The treatment has been conducted in accordance with the views above expressed, and a brief synopsis of these cases may be of interest.

CASE 1. M. S., 20, primigravida at 6½ months, entered early on Sept. 12, 1912. (Vol. 182, p. 361.) She had had headache all night and two convulsions before the ambulance arrived. On admission she was conscious, but excitable and irrational; face and legs œdematous; no fever or vomiting; always constipated; pulse 112; blood-pressure 150; fœtal heart 144. Urine: 1,030, acid; albumin, largest possible trace; sediment, free blood and pus, granular and hyaline casts with blood attached. No signs of labor. Eliminative treatment immediately begun, and during the day patient received a compound enema, 60 oz. cream of tartar water, 9 drams of Rochelle salts, and ½ grain of morphia in 1-6th grain doses; she was perspiring freely at 2 p.m., had four dejections, passed a large amount of urine (not collected and measured), and had four convulsions.

Sept. 13: In-take, 130 oz. cream of tartar water, 30 oz. milk, 27 drams Rochelle salts, 2 oz. Epsom salts, 15 grains jalap, 15 grains triple bromides, three 1-6th grain doses of morphia; out-go, 17½ oz. collected urine, 8 dejections, free sweating. Patient more rational and quiet, sleeps at intervals, no more convulsions.

Sept. 14: In-take, 86 oz. cream of tartar water, 40 oz. milk, 24 drams Rochelle salts, 15 grains triple bromides; out-go, 25½ oz. urine, 18 dejections, profuse sweating. Patient slept at intervals.

Sept. 15: In-take, 50 oz. water, 12 oz. cream of tartar water, 47 oz. milk; out-go, 24 oz. urine, 10 dejections, continued sweating.

Sept. 16: Patient rational since yesterday, sweats profusely, bowels kept open with one dram Rochelle salts every hour, urine 23 oz., dejections 10, kept quiet with 1-6th grain doses of morphia every four hours, alternating with triple bromides; albumin ¼%.

Sept. 20: Pulse and temperature normal, blood pressure 160; is taking fluids freely, milk diet, œdema gone; no morphia for two days, bromides omitted; total urine last four days 213 oz.; fœtal heart 140.

Sept. 25: General condition improving, kidneys and bowels working well, blood-pressure 150.

On October 2, three weeks after admission, patient was in excellent condition, and in spite of rather heroic sweating and purging labor had not supervened. As the fœtus was still alive, it was hoped that pregnancy might continue until the baby was safely viable; but four days later the fœtal heart was not heard, and on Oct. 8 a macerated fœtus was spontaneously born; the placenta contained a large white infarct. On Oct. 24, when the mother was discharged well, the urine had sp. gr. 1,022, and contained a trace of albumin but no renal elements.

CASE 2. G. C., speaking no English, entered late, Oct. 18, 1912 (Vol. 184, p. 209). The only history obtainable was that the patient had been well up to 2 p. m., when she had a headache; at 4 p.m. she had a convulsion, and four more prior to admission, when she was unconscious. Apparently nearly at full term, but not in labor; baby living; maternal pulse and temperature 138 and 102.8 respectively. She was put on the usual eliminative treatment; and as the cervix was soft and would admit one finger, a Voorhees bag was inserted. The next forenoon the cervix was found fully dilated, and a living baby weighing 7 pounds was delivered with low forceps. Patient recovered consciousness on the third day; she then drank well and her general condition was satisfactory. She was able to nurse the baby, which weighed 7½ pounds on the 26th day, when mother and baby were discharged well, the mother's urine showing no albumin and no renal elements.

Case 3. M. N., 29, single, secundi-gravida, entered November 9, 1912 (Vol. 185, Page 197). For a week she had noticed œdema of feet and legs, and had felt unable to work; in bed one day and had vomited all food; no pain or headache; pulse 86, temperature 98.6; had several mild convulsions before, and one shortly after, admission. Patient seven months pregnant, cervix closed; fœtal heart not heard, nor movements felt. Urine: 1,028, acid, albumin ½%, many granular casts with cells attached, few fatty casts, some free blood and pus. Eliminative treatment. Patient had no further convulsions after admission until the night of Nov. 14, when she had six, and it seemed best to induce labor. The cervix was soft and dilatable, and a Voorhees bag was introduced under anæsthol in the early forenoon of Nov. 15; a 6 to 7 months macerated fœtus was normally born at 7.30 p. m., the placenta showing many white infarctions. For several days after delivery patient was irrational and restless, requiring large doses of bromides; but she completely recovered from her toxæmia and was discharged well on the 26th day.

Case 4. M. B. M., 36, septi-gravida, entered in the evening of Nov. 10, 1912 (Vol. 185, Page 213). She had noticed œdema of the legs for the past two days, and had had headache and disturbed vision since the morning; at 6 P. M. she had labor pains, at 6.45 p. m. her first convulsion, at 7.45 p. m. a second, and a third in ambulance. On admission the cervix was soft and admitted one finger, the fœtal heart was not heard, blood pressure 200; she was put on eliminative treatment, and there were no further convulsions. Next morning the os admitted two fingers, the cervix was easily dilated under anæsthol, and a 6 to 7 months macerated fœtus was delivered by internal podalic version. On the 16th day the woman was discharged well except for her chronic nephritis.

Case 5. H. W., negress, 22, married 10 months, primigravida, entered early on Nov. 26, 1912 (Vol. 186, Page 17), having had three convulsions. She was unconscious, restless, and breathing stertorously; moderate œdema of face and ankles; apparently 8 months pregnant, cervix soft, admitting one finger, not effaced; membranes not ruptured; head presenting, high; fœtal heart not heard. Urine: ½% albumin. Blood pressure 145. Patient was placed on the usual eliminative treatment, to which she reacted well, but continued to have convulsions. At 9 A. M. she was definitely in labor, and by 11 a. m. the os was almost fully dilated; the membranes were then ruptured, dilatation completed, and an 8 months living baby delivered with high forceps. The woman continued to have convulsions for 48 hours after delivery, however, having 33 in all; she then became conscious and rational, and made an uninterrupted convalescence. Despite drastic saline purgation, she had an abundant supply of breast-milk after the third day, and was able to continue entire lactation for the baby, which steadily gained weight. Mother and baby were discharged well on the 18th day.

Case 6. M. C., 18, married 10 months, primigravida, entered Dec. 4, 1912 (Vol. 186, Page 133), having been delivered at home at 3 P. M. that day of living twins at 8 months, and having had 12 post-partum convulsions before entrance. At entrance she was semi-conscious, but irrational, flowing moderately, uterus hard. Temperature 102.2, blood pressure 148; the urine showed a very slight trace of albumin. Patient was placed on the usual eliminative treatment, to which she responded well, but had eight more convulsions during the next 48 hours. She then gradually recovered consciousness, temperature fell to normal, and patient made an uninterrupted convalescence. There was slight lactation, but insufficient for nursing. The babies were fed on modified cow's milk, and were discharged with the mother on the 23rd day, the latter well, the former weighing 3½ and 5½ pounds respectively.

Case 7. M. H., 20, married one year, primigravida, entered at 11.30 p. m., Dec. 29, 1912 (Vol. 187, p. 73). For past three weeks has had some swelling of hands and feet. At 7 p. m. today went to bed with severe headache, had a convulsion and became unconscious; two more convulsions before admission. At entrance patient was semi-conscious, but irrational; apparently 8 months pregnant; cervix soft, admitting two fingers; membranes intact; head presentation; fœtal heart 152; urine, ½% albumin; blood-pressure, 140. Patient was put on eliminative treatment; but as convulsions continued, the largest size of Voorhees bag was introduced at 2 a. m., Dec. 30. Patient took in active labor, expelled the bag at 8.30 a.m., and delivered herself in an hour of a stillborn fœtus; placenta much infarcted. Patient returned to bed and eliminative treatment continued; she had altogether 3 convulsions before entrance, 12 between entrance and delivery, and 7 after delivery, the last at 4.10 p. m., Dec. 30. She then regained consciousness and made a rapid and uneventful convalescence.

Case 8. M. H., 33, married 8 years, primigravida, entered Jan. 1, 1913 (Vol. 187, p. 101). Headache and epigastric pain for several days before admission; first convulsion at 1 a.m., Jan. 1. At entrance patient was conscious, but not rational, very restless with much jactitation; apparently 7½ months pregnant; cervix soft, admitting two fingers; membranes not ruptured; head presentation; fœtal heart 140; urine ¼% albumin; blood-pressure 148. The usual eliminative treatment was instituted, and the largest size of Voorhees bag was introduced. Patient's condition remained about the same throughout the day, but without further convulsions. At 8 p. m. the bag was extruded from the cervix, which was soft and completely dilatable; head not engaged, fœtal heart 160. Under anæsthol the high forceps was applied, and the baby extracted, apparently dead, but after 40 minutes of mouth to mouth insufflation the baby was resuscitated and lived, although small and choked with mucus. The mother made an uninterrupted convalescence, regaining rationality on the second day after delivery; and both mother and baby were discharged well.

Case 9. F. K., 23, primigravida, entered in the afternoon of Jan. 2, 1913 (Vol. 187, p. 141), having had ten convulsions at home and one during transportation. Patient apparently 7½ months pregnant, comatose; pulse 130, thready; cervix soft, admitting three fingers; membranes intact; head presentation; fœtal heart not heard. Urine shows large trace of albumin; blood-pressure 190 to 205. Placed on routine eliminative treatment, and the largest sized Voorhees bag inserted. Six further convulsions, patient being semi-conscious and very violent in the intervals. At 2 a. m., Jan. 3, the bag was found to have been extruded, and patient was delivered of a

dead fœtus by high forceps. After delivery the blood-pressure fell to 80, but subsequently rose to 90 and remained at that level throughout convalescence, which was satisfactory. The patient had no further convulsions; but on the third day, after regaining consciousness, she was for a time maniacal, but recovered in 24 hours from her psychosis, and was discharged well.

CASE 10. I. P., 19, primigravida, married one year, entered at 8 p.m., Jan. 20, 1913 (Vol. 187, p. 345), having had four convulsions. Headache for several previous days, but no eye symptoms. Patient was found to be semi-conscious, very restless, and breathing stertorously. She was apparently at term; the cervix was hard and not effaced, admitting one finger; membranes intact; head presenting; fœtal heart not heard. Urine showed hyaline casts and ½% albumin; blood-pressure 180. Patient was immediately put on eliminative treatment; she drank water freely and perspired well, but the bowels did not move in spite of continued administration of salts. Within the next hour the patient had two more convulsions. The largest Voorhees bag was then inserted, at 9.30 p.m., and labor pains soon began. At 1.30 a.m., Jan. 21, the bag was still *in situ*, the cervix thinned, but still rigid, the os admitting only two fingers. Patient had had two more convulsions, but further delay was decided upon. By 5.30 a.m. the patient had had three more convulsions, a total of eleven. By this time the bag had been extruded, the os easily admitted four fingers, the cervix was soft and its dilatation was readily completed. The fœtal head, previously high and floating, had become well engaged; under anæsthol, therefore, the delivery of the dead fœtus was quickly completed by an easy intermediate forceps operation. The placenta showed extensive areas of white degeneration. The patient was allowed to bleed moderately from the uterus, and no ergot was given. The blood-pressure fell after delivery to 150, and the next day to 140. Patient recovered consciousness within a few hours. Eliminative treatment was continued; but the bowels did not move for 24 hours after entrance, and then not until after the patient had received two high compound enemata, and by mouth 2 drops of Croton oil and a total of 22 ounces of Epsom salts. After the bowels had moved the patient drank water almost continuously for 36 hours. She had no more convulsions after delivery, and her convalescence was uncomplicated save for an attack of tonsillitis.

In these ten successive cases, then, one of which was a case of twin pregnancy, 5 babies were discharged well, and 6 were stillborn (including 3 macerated fœtuses); all the mothers recovered.

THE PREVENTION OF FOOT STRAIN.

BY ROBERT B. OSGOOD, M.D., BOSTON.

(From the Orthopedic Department of the Massachusetts General Hospital.)

THERE are certain occupations in which foot-strain is sufficiently common to represent a frequent cause for temporary and sometimes long continued disability. Policeman's heel is already a medical diagnosis. Motormen suffer frequently from weakened arches, and nurses in their hospital training are a class whose feet are very susceptible to strain, since their hours are much longer and the surfaces on which they walk are often harder than those to which they have been accustomed. Another factor of possible strain with nurses is the different gait which they frequently assume in their attempt to walk quietly.

It is chiefly in this latter class that the studies to be reported have been begun, but we see no reason why these methods should not be extended to the preliminary physical examination now so generally conducted in large student bodies and in companies employing large numbers of men and women, the efficiency of whose service is dependent upon the efficiency of their feet.

We believe that it is generally recognized among orthopedic surgeons that there exists no definite relationship between the height of an arch and the strength of a foot. The highest arches are often found in the least stable feet and the lowest among savage tribes whose foot-action is most perfect. Furthermore, we have found it often difficult to determine from inspection and palpation alone the potentiality of strain in symptomless feet, and yet in the class of cases above referred to the ability to do this may be of considerable importance.

Five years ago a study of the comparative strength of the abductor and adductor groups of the foot was made independently by Dr. Arthur Legg and the writer, using a simple method of mensuration from which it seemed fair to draw conclusions, although a certain degree of probable error was recognized.

By an unopposed pull of the abductors the foot is drawn into an outwardly rotated position, the calcaneo-scaphoid ligament is stretched, and the plantar arch depressed. Foot-strain would, therefore, be favored if the abductor group; consisting chiefly of the peroneals, controlled the position. By an unopposed pull of the adductors the foot is inwardly rotated, the inner border shortened, and the arch made higher. These adductors consisting chiefly of the anterior and posterior tibial and the flexor longus hallucis may be considered, therefore, as the conservors of the longitudinal arch.

Flexible feet only were measured and these were arbitrarily grouped under four headings.

1. Normal feet.
2. Pronated feet without symptoms.
3. Pronated feet with symptoms.
4. Acute foot-strain, usually with a valgus position.

The averages in the different groups, comprising over a hundred feet, were so uniform in both series as to encourage the writer to persist in the use of the method.

The average ratio of the adductor pull to the abductor pull in normal feet was found to be 10 to 8.2 in favor of the adductors. In pronated feet without symptoms 10 to 10.5 in favor of the abductors. In pronated foot with symptoms 10 to 10.8 in favor of abductors. In acute feet with valgus 10 to 12.2 in favor of abductors.

We began soon after the publication of these findings to study the feet of the probationer nurses at the Massachusetts General Hospital and to follow them during their course of training. Thanks are due to Drs. Goodrich, Wells, and Brown for help in obtaining these. The first records were taken in 1907 and the last in 1912. No statistics as to foot symptoms were kept previous to 1907, but it was at least not uncommon to have nurses laid off duty for foot-strain, and many reported for foot trouble. In conversation with a surgeon in another large city hospital to whom all nurses in training report for foot discomfort, he stated as his impression that at present he sees one or two nurses every month who are laid off duty for foot strain. These nurses are not specially examined on entrance, but are advised to obtain a uniform flexible shoe of good lines. About one-third of the nurses accept this advice.

The headings under which the examinations of the Massachusetts General Hospital nurses have been made are as follows:

1. Name.
2. Date.
3. Previous history of rheumatism or foot trouble.
4. Number of hours a day on feet previously.
5. Flexibility of feet (special reference to dorsal flexion).
6. Points of tenderness.
7. Height of arch without weight.
8. Height of arch with weight.
   a. Standing.
   b. Walking.
9. Callosities.
10. Type of shoe being worn.
11. Muscle balance.
    Tests of adductor and abductor groups.
12. Remarks and recommendations.

TYPICAL EXAMINATIONS.

Case 1. L. S. Z. No. 178. 22 years. October, 1910. At school before entrance. On feet about eight hours daily. No trouble with feet or back. Never has had rheumatism. No trouble with feet or back since entrance. Flexibility, good. Dorsal flexion beyond right angle. Standing position, fair. Walking, fair. Toes out. Arch at rest, low. Left lower than right. With weight drops left more than right. Tenderness, none. Calluses, small callus under anterior arch. Toes, left fifth overrides; right first, slight valgus. Test: Right adduction, 40; abduction, 27; left adduction, 41; abduction, 39. Relaxed low arched feet. Shoes, good, flexible last shoes. No recommendations made.

June 5, 1911. Comes to O. P. D. because of slight tire in left foot. (See balance tests). Is wearing "Ground Gripper" shoes. Examination shows only slight plantar tenderness. Thomas heel prescribed. Hot and cold showering. Relief.

Note.—The symptoms occurred only in the left foot, in which the balance was less perfect. They occurred in spite of the fact that she was wearing a flexible shanked shoe of good lines.

Case 2. M. A. M., Nov. 13, 1911. Age, 24. No. 326.

Past History.—Teacher. On feet from 6 to 7 hours daily. Never has had rheumatism.

Present Illness.—No trouble with feet before or since entrance. Flexibility, dorsal flexion slightly beyond right angle. Standing position, slight pronation. Walking, slight out-toeing with sag. Arch at rest, medium. Arch with weight, medium. Tenderness, none. Calluses, none. Test: Right adduction, 27; abduction, 39. Left adduction, 32; abduction, 39. Shoes, soft. Poor lines, showing marked wear at forward inner corners of heels. Special last shoe advised. Thomas heel, 1-2 in. forward, 3-16 to 1-8 in. rise.

Remarks. Seen in Ward 1, Jan. 5, for foot strain. Disregarded advice at examination. Has only just obtained proper shoes and heels. Strapped with adhesive plaster. Little relief.

Feb. 1. Cast taken for arch plates. Feet re-strapped.

Feb. 18. Strapping removed. Plates applied.

Feb. 24. Condition very much improved.

March 5. Entirely relieved.

Note.—The symptoms occurred as a result of added foot strain in the presence of a faulty balance. We believe that if the advice given at the first examination had been followed this discomfort and the use of plates might have been avoided.

The muscle tests have been made with the patient seated and with the rotation of the thigh controlled, as shown in the photographs (Figs. 1 and 2). We are at present trying a simpler and

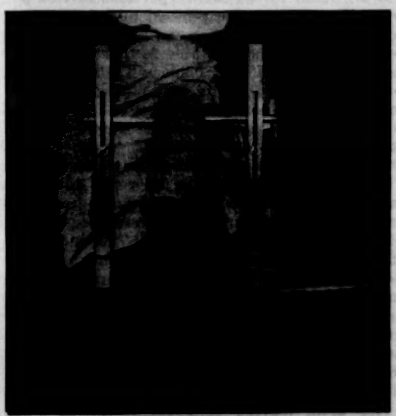


Fig. 1. Adduction Test.

Toes curled. Padded strap about foot just back of great toe joint, attached to spring balance indicating pounds-pull. Toes flexed to call into play flexor longus hallucis.

more portable contrivance which promises as great accuracy and allows the tests to be made in the standing position and with or without the use of the thigh rotators.

The important part which the rotators of the thigh play in controlling the position of the foot



FIG. 2. Abduction Test.
Toes extended.

has been emphasized by Lowman.* With the foot fixed on the ground, for instance, the contraction of the outward rotators would raise the inner border and vice versa. Their force, moreover, is applied to the long arm of the lever.

All probationers have been examined during their first few weeks of hospital life by the methods described in the earlier portions of this paper. They have had explained to them the reasons for wearing during their working hours proper shoes. Lasts suitable to their individual needs with and without Thomas' heels have been prescribed. Eighty-four of 133 taken chronologically and followed for at least a year were considered to need advice. The simple cases of strain and those who were believed to possess the potential of strain have been thus treated. The more severe cases have been told to report to the Out-patient Department and appropriate treatment has been more carefully planned. 64 showed a normal muscle balance; 69 showed an abnormal muscle balance; 19 reported to the Out-patient at some period of their course complaining of foot symptoms. 12 or 60%, of this 19 reported by request after the first examinations, were treated, and never more heard from. 7 reported for trouble later in their course. Of these two were cases of infectious arthritis, one was acute strain of the anterior arch, leaving four reporting for what seemed to be typical footstrain. Of these four, two had an abnormal muscle balance discovered at the first examination and had ignored the advice given them; one later was obliged to give up training on account of persistent rheumatic trouble, and the remaining one had just returned to duty after a long period of comparative inactivity, and was wearing an especially vicious shoe. Only six cases have been treated with plates. We can find record of only two cases of the 133 who reported later in their course for foot symptoms who showed at their initial examination normal muscle balance. One of these, as has been mentioned above, subsequently gave up her training on account of rheumatism and the other improved after giving up her deforming shoes.

A second group of 112 nurses taken chronologically during the past two or three years has been arranged under different headings.

TABLE I.

NURSES, 112.

Adductors, strongest group,	56	
Abductors, strongest group,	33	
Groups approximately equal,	9	
Groups asymmetrical,	14	
Dorsal flexion limited (with abductor balances)	7	
Dorsal flexion limited (with adductor balances)	6	
Faulty position, adductor balance,	12	36
Faulty position, abductor balance,	24	
Good position, adductor balance,	32	41
Good position, abductor balance,	9	
Tenderness to pressure, abductor balance,	9	
Tenderness to pressure, adductor balance,	1	
Poor shoes, abductor balance,	17	44
Poor shoes, adductor balance,	27	
Good shoes, adductor balance,	20	33
Good shoes, abductor balance,	13	

Through the kindness of Miss Homans Professor of Physical Culture at Wellesley College, and Dr. Randall, her Assistant, examination of the feet along these lines was made a part of the general physical examination of the students. In this group there are about 350 cases.

TABLE II.

ANALYSIS OF 369 CASES OF FOOT EXAMINATION, WELLESLEY COLLEGE.

Adductors, strongest group,	76	
Abductors, strongest group,	185	
Groups equal,	29	
Groups asymmetrical,	79	
Dorsal flexion limited (with abductor balances)	40	
Dorsal flexion limited (with adductor balances)	16	
Faulty position, abductor balance,	131	172
Faulty position, adductor balance,	41	
Good or fair position, adductor balance,	31	55
Good or fair position, abductor balance,	24	
Tenderness to pressure, with abductor balance,	40	
Tenderness to pressure, with adductor balance,	10	
Poor shoes, abductor balance,	107	142
Poor shoes, adductor balance,	35	
Fair to good shoes, abductor balance,	43	65
Fair to good shoes, adductor balance,	22	
Previous trouble with feet with abductor balance,	7	
Previous trouble with feet with adductor balance,	1	

The interpretation of these statistics is interesting.

Among the students Dr. Randall reports that a surprisingly small number of the girls are able to take a walk of considerable distance without general and foot fatigue. (See Table II, Add. and Abd. balance ratio, also faulty position ratio.) She also reports that there is a very general

* BOSTON MED. AND SURG. JOUR., Jan. 18, 1912, p. 90.

tendency to vicious shoes of the pointed toe, high heeled type. (See shoe statistics.) Dorsal flexion was limited in 56 cases, more often when the abductors were the stronger group, but frequently also when the balance was normal.

Miss Rossiter of the Department of Physical Education at Smith College reports that roughly speaking the last entering class showed 80% of faulty position and 10% with foot pain.

In the group of nurses, Table I, we are evidently dealing with a more normal and properly balanced class of foot. The previous occupation had, as a rule, been more active and a better physical development may be presupposed. (See Table I, the relation of adductor to abductor groups; also faulty and good position ratio.) The poor shoes outnumbered the good shoes, but not markedly. Dorsal flexion was limited about as often when the adductor pull was the stronger as when the abductor pull was the stronger, seeming to suggest that this may not be as important a factor as has been supposed. In this series the tenderness to pressure beneath the calcaneo-scaphoid ligament and the plantar fascia occurred only once when the balance was normal. There had been practically no previous trouble with the feet among these cases.

Among the nurses since the last report was made there has been but one case who had an approximately normal muscle balance at entrance who has reported for foot strain. This case was one with a stronger adductor pull who had had no previous trouble, but who had a very relaxed foot with pronation and actual valgus in standing, and who, in spite of the normal balance, had been advised to have Thomas heels but had disregarded the advice. The onset of her trouble was acute, had disappeared, when seen, from one foot, and was associated with heat and swelling about the internal malleolus in the other, strongly suggesting a toxemic arthritis. During the past year no nurse, so far as is known, has been off duty for pure foot strain.

It seems probable that by these early examinations of the foot and the determination of the muscle balances a certain amount of preventive medicine may be successively employed to the end of diminishing individual discomfort and increasing institutional efficiency.

TYPHOID VACCINATION.*

A Brief Summary of Recent Literature.

BY J. HERBERT YOUNG M.D., NEWTON, MASS.

Typhoid vaccine may be used in three ways: (1) as a prophylactic, (2) as a therapeutic agent in active typhoid, (3) as a therapeutic agent in chronic typhoid carriers.

The value of typhoid vaccination as a prophylactic measure was clearly demonstrated in the Manoeuvre Division of the U.S.A. in camp at San Antonio, Texas, during the summer of 1911.[1] Here, 12,800 men occupied the camp for about four months and in this command but one case of typhoid fever developed. This was a mild case in a man who had not completed the inoculations necessary for protection. In San Antonio, a city of 97,000 people, 49 cases of typhoid with 19 deaths were reported during this period. In a division of about the same strength, encamped in the same latitude for the same length of time in 1898, there were 1729 certain and 2693 certain and probable cases of typhoid with 248 deaths. Since Sept. 30, 1911, typhoid immunization has been compulsory in the U.S.A. for all officers and enlisted men under the age of 45. In Dec., 1911, there were 3000 unvaccinated and 52,680 vaccinated troops, 2 cases of typhoid had occurred among the vaccinated, 43 among the unvaccinated. Russell[2], in his latest paper reports over 70,000 men in the army immunized. Among these men there were 14 cases of typhoid with one death, due to intestinal hemorrhage.

The method of immunization used in the army is as follows: the site of puncture, usually the outer side of the left arm, is sponged off with alcohol and a small area sterilized with tincture of iodine, the injection made with a sterile syringe and the puncture sealed with collodion. The first dose contains 500 million bacilli, the second and third one billion each. An interval of ten days is allowed between doses, the entire procedure thus taking twenty days. The injection is made into the subcutaneous tissue and not into the muscles. The dosage for women and children is in proportion to the body weight, the above being the dose for the average man weighing 150 pounds. No vaccine is used that is over four months old.

The duration of the immunity conferred by the inoculations is as yet an unsettled question. Firth, from his experience with the British Army in India, places the period of protection at two and one-half years. Leishman thinks re-inoculation should be given after two years. In the U.S.A. the enlistment period is three years and for the present the orders are that the inoculation shall be given at each enlistment.

The Massachusetts State Board of Health now furnishes to the medical profession a typhoid vaccine to be used for preventive inoculation. The dosage and interval between doses recommended is that described above as used in the army. There are no contra-indications against the use of the prophylactic in the presence of an epidemic. In fact, its use is rather to be recommended under such conditions. In case, however, the person to be inoculated has had typhoid in the past, reactions may be severe and the dose should be reduced one-half. Care should be taken, furthermore, with individuals who are suffering from chronic infections, as such infections have been known to be aggravated temporarily by antityphoid inoculation. The prophylactic may be obtained by applying to the local board of health in a manner similar to that employed in the case of diphtheria anti-

* Read at the Surgical Fortnightly Club, Jan. 14, 1913.

toxin and smallpox vaccine.[3] It should be borne in mind that after typhoid inoculation the Widal reaction is positive, and an absolute diagnosis of typhoid fever can be made only by means of a blood culture. Russell, in the paper referred to above, says, "It is proven that the prophylactic treatment (of typhoid fever) is without danger (and) that the protection is almost absolute even under conditions of unusual exposure."

The treatment of typhoid fever by vaccines is still in the experimental stage. Different authors recommend doses from one million to one billion, with varying intervals between doses. The sum of opinion of these men, however, is unquestionably favorable. They claim that the fever period is shortened, and that complications, relapses and mortality are markedly reduced; while the use of the vaccine is attended with no bad results and in no way increases the patient's discomfort. Callison[4] has recently collected from the literature 475 cases of typhoid fever treated with vaccines. Omitting 52 cases in which the dose was one or two millions, unquestionably a dose too small to have any effect, the mortality in the remaining 423 cases was 5.4%, with relapses in 6.5%. Callison recommends that vaccine treatment should be instituted as early as it is possible to make a diagnosis. His initial dose is 500 million bacilli; the inoculation is repeated at four-day intervals as long as required, increasing the dose 100 million each time. In his last series of fourteen cases, no patient received more than six, with an average of three to four inoculations. Although 475 cases is too small a number from which to draw conclusions, especially in so protean a disease as typhoid fever, the results obtained are encouraging.

While medical literature contains numerous reports of chronic typhoid carriers, there is but little discussion of the treatment of these patients. Brem and Watson,[5] reviewing the literature in November, 1911, found, including one case of their own, only 12 recoveries of typhoid carriers. Three chronic intestinal carriers recovered after operations on the gall-bladder, one during the administration of B. bulgaricus in large doses, one after repeated exposure of the gall-bladder to x-rays, and one urinary carrier after the administration of hexamethylenamin in combination with boric acid. One intestinal, three urinary and two carriers discharging bacilli from bone lesions were cured with autogenous vaccines. Cummins, Fawcus and Kennedy[6] treated 7 typhoid carriers by various methods and were sure of the recovery of only one patient, an intestinal carrier treated with lactic acid bacilli. Vaccine treatment failed in the three cases in which it was tried, one intestinal and two urinary carriers. Since the publication of Brem and Watson's paper, six cases, one urinary and five intestinal carriers, treated with vaccines have been reported. Two intestinal carriers, one with an acute cholecystitis that recovered without operation,[7] and a bacilluria of twelve years' duration[10] were cured. Two intestinal carriers have remained free from typhoid bacilli for three and one-half[8] and six months.[9] The sixth case, a chronic suppurative cholecystitis, was drained and the discharge gave a pure culture of B. typhosus. The sinus gave no evidence of healing until a vaccine was given.[10] In the treatment of typhoid carriers Meader[9] recommends an initial dose of 100 million bacilli repeated at intervals of two weeks, increasing the dose 200 million each time.

To summarize: (1) Typhoid vaccine as a prophylactic provides almost certain protection from typhoid fever. (2) Typhoid vaccine as a therapeutic agent in active typhoid is still in the experimental stage. A sufficient number of cases have not been studied to enable one to draw definite conclusions. The results so far obtained, however, are favorable. (3) Typhoid vaccine as a therapeutic agent in chronic typhoid carriers, while it does not offer certain cure, is the method of treatment that has given the best results.

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A NEW METHOD OF DEALING WITH THE PERIPHERAL BRANCHES OF THE FIFTH CRANIAL NERVE IN TIC DOULOUREUX.

BY BENJAMIN BRADSON CATES, M.D., KNOXVILLE, TENNESSEE.

IT will no doubt be conceded by the average practitioner in medicine that sometimes neuritis or neuralgia is one of the most obstinate conditions confronting a patient and doctor.

We know that in this condition, as in any other, the essential or primary factor must be sought, because the neuralgia is but a symptom pointing to some latent or obvious cause. Personally I am almost convinced in such cases—especially in individuals in middle or after life—that increasing recurrences of neuralgia is a warning of beginning changes in the arterio-vascular system.

I am so positive that such is the case, even when frank clinical signs are wanting, that such changes are taking place and when consideration of all other possible causes of neuritis is negative, that I assume under the circumstances in the absence of other proof, that the patient has incipient arterio-sclerosis not evidenced by the most refined methods of diagnosis.

I have been taught my lesson in this kind of condition in several instances, more particularly in the case of a man in middle life, with large business affairs, who suffered such excruciating pain in this thumb, forearm and arm that he was unable to give attention to any of his duties, and traveled from place to place, consulting the most eminent neurologists and internists of the country, and who subsequently died of hemorrhagic pancreatitis. If any of the specialists consulted ever suspected arterio-sclerosis as the cause of pain they never indicated it to him or advised me of their suspicion. Furthermore, it never dawned on me until he was attacked, as examination of the urine was negative and the heart sounds were normal.

Eliminating then all known causes of neuritis, there still remains a type of neuralgia that baffles the internist for explanation and which turns for relief to the surgeon. One of the most intractable and mystic is neuralgia of the fifth cranial nerve.

The different suggestions that have been recommended to meet the etiological indications from a surgical standpoint run from the simplest, such as injecting the nerve and its environs with different solutions, resecting the peripheral branches, to removing the Gasserian ganglion. The most absurd is the removal of apparently sound teeth.

Now it will be allowed that removal of the Gasserian ganglion is a most serious and dangerous operation, to be undertaken only in select cases and by a most skilled surgeon. Therefore, any method that will accomplish the same result, with the least possible risk of life to the patient, is a desideratum greatly to be wished.

One of the main objections urged against resecting the different branches of the nerve, is that it is only palliative, that after a variable time the continuity of the nerve is re-established, when there is a return of the pain and suffering.

Surgeons have attempted to prevent just such a condition by plugging the exits of the nerve with some non-absorbable foreign material. In cases where I have tried to plug these openings—sometimes there is no supraorbital foramen, merely a notch—I have failed to anchor these plugs, or broken through these canals when driving the plugs home. In such circumstances I have resorted to another method to prevent the continuity of the nerve being re-established.

That is to say, in respect to the supra-orbital nerve, after pulling it out carry the proximal end of the distal branch by tunneling a variable distance under the muscles of the forehead, then split the occipitofrontalis, and anchor it with catgut to the under surface of the skin of the forehead. The proximal end of the distal extremity of the infra-orbital nerve is pulled down and attached with fine catgut to the tissues of the cheek under the skin.

It is well in this connection to furbish one's mind and to remember that the infra-orbital nerve and its subsidiary branches are derived from the superior maxillary division of the fifth cranial nerve, because by not respecting this anatomical distribution is no doubt the cause of lapses following section of the infra-orbital nerve.

Now the superior maxillary nerve just as it is about to enter the infra-orbital canal gives off the posterior superior dental branches, which supply the gums, the cheek, the antrum and three upper molar teeth; that in the back part of the infra-orbital canal it gives off the middle superior branch to the antrum, and two bicuspid teeth; and just before its exit at the infra-orbital canal it gives off the anterior superior dental branch to the canine and incisor teeth.

Any operator who fails to get beyond the origin of these nerves will be disappointed in his result, consequently one should attempt to break off the continuity of the nerve proximal to the spheno-maxillary fissure.

In regard to the inferior dental branch of the fifth nerve, it may be said that after reaching it by the ordinary way of through the ramus of the jaw, by pulling slowly and steadily from the centrum, one may succeed in breaking it off proximal to the origin of its lingual branch; then by pulling from the periphery on the terminal division, one may succeed in tearing out the nerve with all its branches in the body of the jaw.

It may be worth while to say that, though the nerve has considerable tensile power, any rough handling, such as jerking or twisting, is liable to break the nerve at some point distal to subsidiary branches, which spells failure to relieve the patient and disappointment to the operator.

A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

(*Continued from page 343.*)

BY H. W. MARSHALL, M.D., BOSTON.

THE EXACT ORIGINS, KINDS AND CHEMICAL NATURES OF CIRCULATING BACTERIAL PRODUCTS DERIVED FROM THE INTESTINAL TRACT.

In the lumen of the bowel there are always countless living bacteria representing many species. Some are accidently introduced with the food, and resistant spore-forming varieties are the ones especially likely to survive the action of digestive juices. These develop in small numbers among the colonies of bacillus coli upon culture plates when specimens of intestinal contents are examined bacteriologically.

The majority in nearly all instances belong to

the colon group of bacteria even when pathologic species like typhoid and dysentery bacilli are present in large numbers. Consequently bacterial products in the urine presumably represent waste products derived mainly from activities of the colon group of bacteria.

Streptococci; staphylococci; proteus vulgaris; bacillus aerogenes capsulatus and other anaerobes are commonly met with; and if one examines with a microscope the contents of the large intestine the richness of the material in micro-organisms and the variety of their forms is strikingly apparent.

The late Dr. C. A. Herter, of New York City, in his book upon Bacterial Infections of the Digestive Tract, classified chronic excessive intestinal putrefactions under indolic, saccharobutyric, and combined indolic and saccharobutyric types. He also described the fermentative and putrefactive processes from the standpoint of their products; namely, oxalic acid and oxaluria; acetone; basic substances—putrescin and cadaverin; sulphur compounds—mercaptan and hydrogen sulphide; aromatic products—phenol, cresol, skatol, and indol.

Without attempting to indicate further complexities that may exist, attention is focused upon the fact that the colon group of bacteria grow very rapidly and dominate the bacteriological picture of intestinal conditions. Because they overwhelm other species they are thought to exert a beneficial influence in suppressing accidental strange races of micro-organisms in the intestinal flora that otherwise might develop and injuriously affect their host.

It is certain at least that products of growth of bacillus coli are not harmful ordinarily in small amounts. So inocuous are they that their absorption, passage through the body, and excretion in the urine is accomplished usually with no disturbance at all.

Yet these very harmless bodies are the ones the writer wishes to identify with slow development of certain obscure pathological changes in the body tissues.

Harmless bacterial products are comparable to uric acid. Joint symptoms of gout might be even more obscure than they are now if urates didn't happen to crystallize out upon the weakened tissues; and the influence of so-called "harmless" bacterial products might be appreciated more readily if their action upon joints resulted in crystallizations instead merely in edemas and swellings which other causes also produce.

Both are normal waste products of metabolism, uric acid from tissue cells, and bacterial substances from intestinal bacterial cells.

Another point of similarity which they both possess is that of appearing in the urine in a surprisingly variable way, also of backing up at times in the circulating blood, presumably in unusual proportions. Urates are known to be present in the blood in excessive quantities in gouty conditions, and the same probably is true for products of intestinal fermentations in chronic excessive putrefactions. All theoretical considerations support this view and at least no clinical data known contradict it. It is a matter of difficulty, however, to determine the amounts of bacterial substances in the circulation, and the writer does not know of any such quantitative analyses of blood for intestinal bacterial products at the present time.

It is impossible to say whether the theoretical irritating bacterial substance is derived from growth of colon bacilli alone, or whether it is evolved in the activities of many intestinal bacteria. There is the possibility in addition that more than one of the chemically related waste products of bacterial growth may act as vascular irritants.

In a previous paper[5] the writer was inclined to emphasize the importance of metabolic products from strictly anaerobic intestinal bacteria, because they were present in increased numbers in cases of arthritis. There should be no objection to the idea that particular micro-organisms, typhoid bacilli, dysentery bacilli, bacillus aerogenes capsulatus, streptococci, or unknown species, being able to give rise to toxemias of special nature when their own peculiar metabolic products are very greatly increased in the circulation; yet for all clinical manifestations under many conditions that have been recorded, some one substance or several substances, constantly present in the bowel in variable amounts theoretically will explain best the mild recurring symptoms that occur so commonly.

The only ones that fulfill this theoretical requirement are the ordinary harmless waste products developing from growth of bacteria belonging to the colon group, but this conception does not antagonize the notion that many others may contribute also their smaller share of the same kind of waste products and that the effect observed may be due frequently to a combined origin.

It seems likely also that organisms of intermediate virulence, those belonging somewhere between the bacterial species producing acute fevers and the harmless colon group, owe their influence as much to the quantitative as to qualitative effects of their circulating products.

It is possible to imagine other theoretical causes, namely, that the intestinal mucosa itself evolves slightly harmful substances under abnormal conditions independently of intestinal bacterial activity. This is true perhaps in carcinomata of the alimentary tract and in states of intestinal obstruction; but for the many minor manifestations of mild intestinal intoxications without the serious defects that have just been mentioned the only fact about which there is no doubt is the formation, absorption, circulation and excretion constantly of harmless waste products from growth of bacillus coli and allied organisms. Upon them, therefore, the writer places the blame for many chronic pathological states in joints and in the alimentary tract, be-

cause they will account for all appearances satisfactorily. Their harmlessness later will be discussed at length.

In attempting to select the exact ones among common bacterial products which probably act as causes for ptosis, arthritis, anemias and other manifestations of auto-intoxications, an interesting fact can be picked up from the tanning industry.

Skins of animals, which represent fibrous connective tissues mainly, are treated with dilute acid solutions in order to "plump" them after preliminary putrefactive "limings" that remove hair and epithelium in the preparation of leather. The rough swelling effect which weak acids have upon such large bulks of connective tissue suggests that periarticular swellings of connective tissues in persons possibly may have their etiology in chemical reactions of the blood in certain instances.

Indol is immediately thought of as a substance that is produced by bacillus coli and by some strictly anaerobic micro-organisms in the intestinal tract that possibly may be the circulating bacterial irritant of some auto-intoxications. Indol is paired in the tissues and converted into indoxyl potassium sulphate; and the indican also constantly appearing in the urine in variable quantities must be attributed usually to intestinal formation of indol.

The significance of indol interested Dr. Herter, and his statements will be quoted freely to illustrate some of the complexities and possibilities that are met in the formation and passage of indol through the body.

"In the human intestine the presence of indol is dependent on the action of living bacteria, although it is likely that the action of the digestive juices may prepare the way for the attack of bacteria on proteid material. The indol produced in the intestine is, like skatol, dependent on the production of a more complex substance known as tryptophan. Hopkins[4] was able to show that the action of bacteria upon tryptophan may lead to the formation of indol, skatol, indol-acetic acid and indol-proprionic acid. An endeavor was made to determine the influence of individual types of bacteria upon the change of tryptophan, and it was found that B. Coli is capable of giving rise to considerable yields of indol at the same time that it produces indol-acetic acid."

"There are many persons from whose intestines it is impossible to recover indol at all or in more than a mere trace. On the other hand, the production of considerable quantities of indol in the large intestine is a feature of many instances of intestinal putrefaction. In some cases one may find as much as fifty to sixty milligrams of indol in one hundred grams of the fresh stool."

"The faeces may contain little indol while the urine holds much indican; conversely, the faeces may contain a considerable quantity of indol, and owing to imperfect absorption the urine may contain only moderate quantities of indican."

"The living cells of the body, especially the hepatic and renal cells, and the epithelial cells of the intestinal tract, have the power of absorbing considerable quantities of indol as well as of phenol and of tying them loosely in such a way that these bodies cannot be recovered by distillation. Owing to this property of the cells by which they hold these aromatic bodies while subjecting them to oxidation and pairing, the nervous system is screened from their action."

"As to the effects of absorbed indol upon the organism in disease it is necessary to speak with caution, since there is no evidence that indol is the only toxic substance absorbed in those cases where it enters the organism from the gut. Some light is thrown on the question by experiments made through administering indol to normal men by the mouth. In one of the cases, a robust man whose urine had been free from indican, felt no effect from large doses given him until several days' administration, when the influence on the nervous system became distinct and led to irritability, headache, flight of ideas, etc. It should be noted that the quantity of indol administered in this case was probably in excess of any amount that would be absorbed from the intestine even in the most pronounced pathological condition. It would not, however, be safe to infer from this that smaller doses would have been harmless; for while such smaller doses might have produced little or no effect if given during a few days to a normal person it is not unlikely that its long continued administration would have led to symptoms."

The deeper one delves into complexities and theoretical possibilities of intestinal conditions the greater does one's confusion become over the tremendous intricacies. Then it is time to stop following single details, and to collect the features that are common to many or all conditions. These common features are comparatively few and can be remembered well enough to be used efficiently in treatment.

One has to stop and realize that whether one or many intestinal bacteria are causes of auto-intoxications, whether they are unknown or known species, whether the intoxication is due to specific or combined actions, and regardless of their chemical constitutions, that auto-intoxications can be relieved by clearing out the gastro-intestinal tract and keeping it cleared out. Also that intestinal antiseptics and diminutions in diets may diminish fermentative processes although exactly why fermentations are harmful is unknown to the person directing treatment.

Cathartics, tonics and other drugs may be effective although ultimate reactions between them and the living tissues are unknown. Sequence of events in clinical histories may show what should be done although most careful clinical tests give no indication of what ought to be

attempted. Accurate applications of well known physiologic principles and biologic conceptions are responsible for many cures although theoretical ideas cannot be proven and sometimes are not employed because they are difficult and theoretical.

CONSIDERATIONS OF HARMLESS QUALITIES OF SUBSTANCES, OF CONVINCING PROOFS FOR THEORETICAL IDEAS, AND CLASSIFICATIONS OF ARTHRITIS.

Harmless or beneficial substances may become harmful ones through changes in conditions which accompany them, and also when there are changes in amounts of the harmless substances themselves under otherwise fixed conditions.

Convincing proofs for theoretical ideas depend upon the keenness of different persons to whom the proofs are offered. The same data may convince one person of the truth of a matter that another remains sceptical about. Stated in another way, varying amounts of proof are required with different persons to convince them of the same identical fact.

Harmless qualities and proofs are met with so frequently in the present paper that the writer thinks it advisable to discuss exactly what is meant by them in the present connections.

Uric acid is a normal product of tissue cell metabolism, and it is found in urine frequently in considerable amounts throughout life among persons who suffer from gout. Indican and ethereal sulphates from bacterial decompositions in the bowel also are present constantly in the urine throughout life, and they may be found in very considerable amounts at times without any symptoms at all. Therefore, it is conceded by many persons that both urates and such bacterial products are harmless.

This error is natural when so many positive striking facts are known, and the mistake arises through neglect of two other, easily forgotten, important points,—variable tissue resistances and variable concentrations in the blood.

These two last mentioned factors constantly have to be considered because they are features of every physiological situation, yet in the reasons just mentioned for considering urates and bacterial substances harmless they are omitted entirely. All joints instead are assumed to be alike, and all blood is considered of constant composition, and these are erroneous conceptions.

It is true that urates and bacterial decomposition products from the intestine are usually harmless because their quantities are so small in the blood in the majority of persons that no tissues are influenced. Harmful effects theoretically can be produced from them only by an increase in the strength of their action through increasing their concentrations, or secondly by weakening the resistances of the tissues upon which they act while they remain constant in strength.

Theories harmonize with clinical observations upon this point for it is proved that concentrations of urates in the blood are increased in gout, and that variations probably exist at times in joint resistances, as in all protoplasmic structures, beyond any reasonable doubt.

Gouty or intestinal toxemic symptoms may appear, therefore, in joints when quantities of circulating irritants are slightly above the average and act upon weak articular structures; also, when excessive quantities in the blood act upon slightly stronger joints. On the other hand no symptoms will exist under ordinary conditions, nor when excessive quantities are acting upon joints that have resistances greatly above the average.

With these two normal waste products of tissue cell and bacterial cell metabolism respectively, harmlessness to the individual depends directly upon concentrations of the substances in the blood and the variable resistances in the tissues; and the mere facts that these bodies are formed all through life and that they are constantly present in the system really have nothing to do with their harmless or harmful activities. The latter depend upon their direct action upon the tissues under varying circumstances just stated, and in gout probably also upon laws governing crystallization, namely, temperatures, rates of circulation of blood and lymph in joints, etc.

Convincing proofs are usually demanded for theoretical ideas. As an illustration they are demanded for the theoretical hypothesis adopted in the present paper which the writer firmly believes treatments should be based upon in all instances.

This practical working basis takes into consideration many important physiological functions of the body, especially digestive and eliminative ones. It includes recognition of the great importance of interactions between various body tissues, and the variable resistances so commonly exhibited by them. It takes into account the effects of mechanical, external, nervous, and vascular influences, and it recognizes that vascular conditions include considerations of abnormal circulating products at times, especially pathogenic bacteria and toxins, also that abnormal quantities of substances usually present in the circulation may cause symptoms at other times. It emphasizes quantitative as well as qualitative sides of treatments,—that success depends almost as much upon how a selected remedy is used as upon selection of the correct kind. In brief it is a summary of many well known physiological, anatomical and biological facts and probabilities.

Differences observed when it is used and when hap-hazard, incomplete methods are tried, the latter depending upon selection of single remedies and consideration of only a few of the causes contributing to the defective states, unfortunately at times are not very striking. Confusion arises from the fact that incomplete

methods are sometimes successful, and that patients may even get well occasionally without any medical treatment although a physician is in constant attendance.

These latter recoveries obviously are not due to medical skill, and must be thought of as accidents mainly, or to the healthy reactions of patients which go on when the attending physician does not appreciate their existence. Therefore they cannot be advanced as arguments against a hypothesis which attempts better understanding of conditions and acquisition of increased skill from more correct conceptions of the disease. While admission is freely made that some relief often is obtained from poorly understood methods, emphatic insistence also is laid upon rational ones as the only sure ways of making continuous progress.

Learning to apply a working hypothesis such as has been outlined, means familiarizing one's self with the fundamental facts of physiology, biology and anatomy, and this is a slow process. Improvements in results are correspondingly slow to obtain, yet upon looking through the long list of special remedies that have been suggested for rheumatisms, gout, and joint conditions in recent years, and upon following up the results from such measures, there certainly is no great encouragement for continuing such experiments alone.

On the other hand the writer knows from personal experience, as he has become more familiar with the above-mentioned working basis, that he has been able to recognize and correct defects with increasing success which previously had escaped detection.

And anyone, who will spend the time to learn thoroughly the theoretical possibilities associated with development of joint diseases, will find that many of the obscurities disappear as increased knowledge is gained, and that the degree of success in treatment depends directly upon the degree of experience and familiarity with theories and with their practical applications.

The most serious and discouraging thing that happens is the demand for easy methods of treatment exclusively, and those whose accuracy is easily proven. The conception that easy ways will be discovered for treating all complicated defects of an extremely complex human mechanism is fundamently wrong, and it seems greatest progress instead now depends upon abandoning these demands for simplicity alone, and that it is accelerated by acceptance of additional complicated truths and methods of treatment.

Comparatively simple details of any very complicated entity also are very difficult or impossible to prove directly. For illustration, convincing proof is practically impossible for the belief which the writer has advanced that too great concentrations in the blood of comparatively harmless bacterial products from the intestinal tract at times are capable of causing lesions in the joints.

To do so it would be necessary first to select a susceptible person, one with healthy articular resistances of low enough degree to be overcome by the mild irritations of excessive quantities of circulating bacterial substances. This would be no easy task as the majority of persons with intestinal toxaemias do not exhibit joint symptoms.

Secondly, after such a person was found he would have to be subjected to slight degrees of irritations for a long time, not strong ones for brief periods, as there are great differences between acute and chronic processes. The determination of the exact amount of irritation and exact lengths of time of administrations that would yield positive results also would be a rather difficult matter.

Thirdly, provided a favorable case was found that exhibited simultaneously arthritis and intestinal toxaemia in degrees that were pronounced enough to be easily measured, and the individual were willing to submit to experimental treatment—perhaps to long continued measures with enemata of bacterial cultures prepared from his own digestive tract,—such experiments would be entirely unjustifiable.

Under these circumstances the question arises whether theoretical probabilities shall be acted upon in directing therapeutic measures as though they are established facts, or whether treatments shall be carried on as though the probabilities do not exist, and until they are definitely proven.

Decisions upon this matter are easy for pure scientists who are building up scientific knowledge upon proven ideas. They are compelled *not* to accept probabilities although they may be true. The attitude of clinicians, however, is distinctly different, and it is their duty to utilize in treatment many ideas that are too complicated to be directly proven if applications of the latter will help in the relief of human suffering. Judgments with clinicians ought to be passed upon the degrees of probability of matters, and insistence not made upon absolutely undeniable proofs for extremely complicated truths.

The assumption which has been made in the given example that "harmless" intestinal substances cause joint lesions, seems to the writer to be probably the correct explanation for the obscure clinical appearances described. In practice this assumption has justified itself so far as it has been tried, and therefore it is made a part of the writer's working hypothesis and possesses really the weight of an actually proven fact when treatments of patients are directed.

Such an attitude tends toward conservatism and avoidance of new or improbable ideas. This is in direct contrast to the method of selecting remedies because of their new, untried character or for peculiarities that appeal largely to the imagination.

To summarize, convincing proofs are absolutely impossible for many complicated, extremely important truths owing to their dependence upon many complex physiological actions and interactions of living organs. Conditions

cannot be regulated accurately enough to trace causes to their effects by direct controlled experiments probably even by persons of keenest intellect and greatest experience, and this state of affairs presumably will exist indefinitely for many important conditions.

Probabilities and proofs together, not absolute proofs alone, therefore, are what clinicians must utilize in their working hypotheses when attempting to restore health of their patients.

Classifications of arthritis usually are based upon fixed structural changes in the tissues, but it is possible to treat joint conditions very successfully with very little knowledge of these more or less incomplete groupings; and emphasis is not laid in the present paper upon classifications of gross or microscopic appearances, although the importance of knowledge and recognition of pathological changes is fully appreciated.

When correcting physiological defects that are acting as causes for joint lesions it is more important to keep in mind all normal physiological processes concerned in normal function of joints, or that can contribute to defective function, and also all possible external or infectious causes for arthritis.

Joint lesions may be classified physiologically according as their origins lie in one or several of the following defects:—intestinal, hepatic, renal, cardiac, neural, splenic, internal secretory, articular, and other organic defects; or in postural, mechanical, external physical, and many infectious contributory causes.

There is no antagonism between the two classifications. Physiological ones are based upon origins and anatomical ones are based upon the effects observed in the joints resulting from physiological causes. Physiological conceptions and classifications, however, are most accurate for use when functions of living tissues are being dealt with, and when their treatments are being directed.

COMPARISON OF MILD INTESTINAL TOXEMIAS OF BACTERIAL ORIGIN AND GOUT.

Sodium urate in the blood may be derived from absorptions from the bowel like bacterial substances of intestinal origin in the circulation. Uric acid undergoes changes in the liver and other body tissues, as bacterial substances probably do, and like them it is excreted in the urine in small amounts.

The two sets of physiologic phenomena associated, respectively, with the passage of urates through the system, and with the passage of harmless intestinal bacterial products is strikingly alike upon close examination, although there are very many important minor differences between the two.

Pathological changes associated with both conditions presumably represent the effects of retention of normal, ordinarily harmless metabolic substances. The two kinds of waste products when they accumulate in the circulation in undue amounts, as has been stated, gradually set up irritations and changes in various tissues according to the variable resistances of the latter and according to the degrees of concentrations in the blood.

Concentrations of urates in the blood in gout depend upon all of the theoretical variable conditions that intestinal toxaemias do. This is true although in gout there is a very important additional source for urates from tissue cell metabolism. The effect of this additional source is to make regulation of concentrations in the blood less perfectly adjustable therapeutically in gout than in intestinal toxaemias in which the alimentary tract is the sole source of supply of circulating waste products.

Other important features relating to vascular concentrations correspond closely in the two conditions; namely, the variabilities in kidney function, probable variabilities in destruction of the circulating substances of the body tissues; importance of the ratio of the rate of absorption from the bowel or formation by the tissues to the rate of excretion; variabilities in joint tissue resistances; significance of the ratio of the latter to the degrees of vascular concentrations rather than the importance of joint resistance or vascular concentrations independently.

Sodium urate produces somewhat different clinical symptoms from those resulting from bacterial substances, owing to its different chemical nature and to its tendency to crystallize out upon weakened tissues. It has been studied more carefully than bacterial products, and data concerning it are much more definite and abundant than about the latter. A few of the facts concerning urates therefore will be presented to support the theory which has been urged for the action of these two vascular constituents.

Magnus-Levy[7] in a lecture has presented in concise form some of the important points about uric acid in gout, and facts from this reliable source of information will be introduced by the writer.

"Normal blood is practically free from uric acid. In gout it can contain 5 to 10 mg. per 100 c. c. after a mixed diet has been taken; following a purin-free diet the amount is lower, being from 2 to 4 mg. but in no case is absent."

"There is increased formation of uric acid in leukaemia and pneumonia associated with increased destruction of nuclear material, also there is increased production after ingestion of sweet breads, &c. In these conditions there may be as large a quantity of urates in circulation as in gouty patients and yet without gouty manifestations. Persons who do not suffer from gout will eliminate the excess of urates within a few days, and, even when adhering to a mixed diet, their blood will soon be free from urates. In gout, on the contrary, notwithstanding the ingestion of a purin-free diet, uric acid will by no means disappear from the blood."

"In nephritis elimination of uric acid is mark-

edly disturbed. During favorable periods when no other substance is retained in any amount worth mentioning, some milligrams of uric acid, however, are always present in the blood of the nephritic patient."

"Gudsent has shown by physico-chemical methods that sodium urate in the blood exists in two modifications which differ only in their solubility."

"Investigations of the blood show that prolonged circulation of urates at times occurs in gout. In a great number of observations the output of uric acid after feeding sweetbreads or other nuclein-containing material was less than in healthy persons. Different gouty persons do not behave alike, however, and there are some in whom destruction and elimination are performed in the same length of time and to the same extent as in healthy persons."

"Many organs at times may be concerned either in yielding or destroying uric acid, and there have arisen in the past conceptions of gout based upon faulty conditions found in individual organs, liver, spleen, bowels, &c."

"Indirect influences may modify symptoms at times, and if muscular work prevents paroxysms or lessens their violence this need not be referred to an increased destruction of uric acid, but rather to an immediate action on the joints, changing the quantity of synovial fluid or its composition, or the rapidity of its circulation. The actions of other organs too might be indirect."

A. Magnus-Levy himself "found 4 and 6 milligrams of uric acid in 100 c. c. of the fluid aspirated from inflamed knee joints. But in spite of this saturated state one rarely finds crystals in suspension, and when such are encountered they may, perhaps, have originated from the impregnated cartilages which have undergone destruction, or from tophi which have forced a way into the articular cavity." . . . "As a rule, crystallization takes place only in the organized tissue."

"Roberts and Gudsent noted that cartilage, tendons &c. are richer in sodium salts than blood serum. Their sodium content reckoned as sodium chloride rises to 0.9 per cent., while in serum it is only 0.7 per cent." "The theory of solution agrees fully with actual experiment. An addition of 0.2 per cent. of sodium chloride to a saturated solution of urate of sodium brings about precipitation. Roberts conceived the idea that it is the high amount of sodium salts in the connective tissue which very likely determines the place of crystallization of urates."

"Contrary to the opinion of Ebstein," Magnus-Levy thinks "we may at present take for granted that the deposition of urates does not occur in necrotic; but only in living tissue."

It is impossible to harmonize all the confusing, and at times apparently contradictory, observations that have been made concerning uric acid and its manifestations except by a theoretical assumption. It is impossible also to prove any satisfactory theory of gout directly owing to the utter hopelessness of measuring so many variables accurately and simultaneously.

However, there are no doubts about the sequence of physiological events,—the ingestions, absorptions, formations of urates in the body, direct actions and reactions between circulating substances and body tissues, of interactions between the various tissues, and of excretions.

Since it is perfectly clear too that each physiological process, and each tissue activity may vary considerably at times, the writer cannot see the advantage of remaining skeptical of a working hypothesis which is based upon sound anatomical and physiological knowledge even though it is complicated. It can never be directly proven, and as stated previously, time will furnish proofs from applications in practice while inertia or skepticism can lead frequently to worse practical results than possible errors in carefully considered theoretical conceptions.

The writer can see only a distinct advantage in supposing that joints exhibit roughly similar variations toward the influence of urates that they show toward tubercular, gonococcic, pyogenic and other infections.

It is reasonable to suppose that the majority of joints will withstand circulating urates in very considerable amounts for some time. Facts show that urates appear in the blood in unusual amounts at times in nephritis, leukaemia, pneumonia, and after excessive eating of nuclein containing foods; and yet that such patients need not have gouty symptoms. These unusual conditions do not cause gout necessarily because most joints presumably have strong vital resistances against circulating urates.

There is no antagonism between this idea, and the fact that some persons show decidedly gouty manifestations when their blood presents no greater variations from normal than are shown in non-gouty persons with nephritis, leukemia, etc. The healthy resistance of the joint tissues is the determining factor in development of pathological changes in gout as in other articular diseases.

When concentrations of substances in the blood are thought of as representing a balanced state depending upon amounts of eliminations, upon formations and absorptions, and upon clinical changes taking place in the tissues whereby the specified substances are altered or destroyed, theoretically the degrees of vascular concentrations of urates, as of bacterial products, can be varied in several ways.

If the amounts eliminated are diminished, and the supply continues unchanged, there will be an increased concentration in the circulation owing to changes in kidney conditions. Gouty manifestations then are due to kidney defects.

When kidney functions represent an average capacity, and the supply instead is very much increased so that the kidneys cannot eliminate the large amounts fast enough, there will be accumulations and possibly manifestations which

should not be considered necessarily of renal origin. These latter can be ascribed to several defects,—to physiological defects in liver and body tissues in destroying urates; to abnormally large formations in the tissues, or to excessive absorptions from the food. At other times kidney functions and converting powers within the body both may be of average capacity at the same time, and yet not be quite sufficient to meet the unusually great demands made upon them by excessive absorptions or formations or combinations of the latter two.

When the origin for excessive quantities in circulation is mainly within the tissues therapeutic measures must be directed toward increasing eliminations, toward stimulating converting powers of the tissues and toward diminishing such formations of urates. Theoretically and practically regulations of these kinds are very much more difficult than regulation of absorptions from the digestive tract.

The foregoing details are all perfectly possible theoretical situations in the normal anatomical sequence of normal physiological actions of organs and of biological variations among tissues. Combinations only of these well known biological, physiological and anatomical facts will account for the confusing variations in symptoms and results of tests clinically observed in gout.

They are able to harmonize every clinical fact that has yet been described and therefore they should be accepted, it seems to the writer, as a satisfactory working basis upon which to direct curative measures and to interpret patients' conditions.

Turning from causes to effects of too great concentrations of circulating urates, it is possible often by the crystalline deposits to show conclusively the regions that may be affected.

Urates produce characteristic changes in joints which need not be mentioned at length.

Haig[8] describes gout of the intestine as a catarrhal process first affecting the mucous coat, and says at times that these accumulations of deposited urates are visible to the naked eye, also that interstitial accumulations found by chemical analysis are not uncommon.

Urates also produce at times severe gastro-intestinal symptoms which are described in text-books of medicine. Osler[9] speaks of "retrocedent or suppressed gout" as "applied to serious internal symptoms, coincident with a rapid disappearance of improvement of the local signs. Very remarkable manifestations may occur under these circumstances. The patient may have severe gastro-intestinal symptoms—pain, vomiting, diarrhea, and great depression—and death may occur during such an attack.

Deposits of urates not infrequently occur in the kidneys. Tophi are found in cartilages of the ears, nose, eyelids and larynx. Deposits have been described as rarely occurring upon vocal cords and upon valves of the heart.

The only alternative choice, apart from this theory, is one of confusion and skepticism, which has less justification than the idea that, in these harmless waste products about whose existence there can be no doubt and whose frequent presence in abnormal amounts is acknowledged, there is a possibility of explaining all clinical appearances, provided the other well established fact, that of physiological variabilities of living tissues, is kept in mind and applied to the confusing situations which are encountered. As stated before, no other theory will so completely account for everything as this simple grouping of known biological, physiological and anatomical facts.

This conception is a very general one but does not antagonize any details that have been, or are likely to be discovered. It is a rough outline that is easily lost sight of, but, although vague and general, it is correct as far as it goes, and is needed badly to give physicians proper balance and sense of proportion when directing treatments. Without it therapeutic measures are very likely to be entirely inadequate on account of their qualitative and quantitative defects, although they may be at the same time of most painstaking and elaborate kind.

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(*To be continued.*)

New Instruments.

BALL-VALVE APPARATUS FOR THE ADMINISTRATION OF SALVARSAN.*

BY L. L. ALBERT, M.D., BOSTON.

THE object of this communication is to describe and bring into more popular use the ball-valve apparatus for the administration of salvarsan, advocated by Wechselmann of Berlin and widely used in Germany.

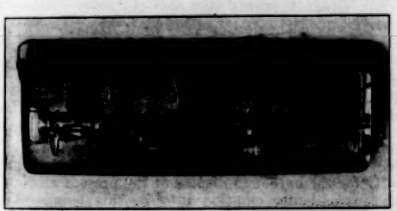
At the Long Island Hospital, Boston Harbor, I have given fifty-five doses, by means of this instrument, at an average of seven minutes for each dose. It is quicker, easier to use, more reliable, and less complicated than other instruments ordinarily used.

The method of procedure is as follows:—

After boiling, the parts are put together and the apparatus is made air free by filling with salt solution. When the tourquinet has been

* From the Service of John H. Cunningham, Jr., M.D., and James S. Tomkies, M.D., Resident Physician, Long Island Hospital.





applied the needle is inserted into the vein. If the vein is properly penetrated blood will invariably appear at the window F if valve C is opened. Valve C is now closed. The salvarsan is then sucked up past the small valve D into the syringe L, and from here up past the large ball-valve E and into the glass arm S, whence it passes into the needle and vein. The valve D prevents the salvarsan from passing back into the graduate. The needle is so constructed as to be self-retained. The remainder of the procedure consists in filling the syringe and injecting the solution up to the required amount.

Several improvements might be made in the apparatus as follows:—

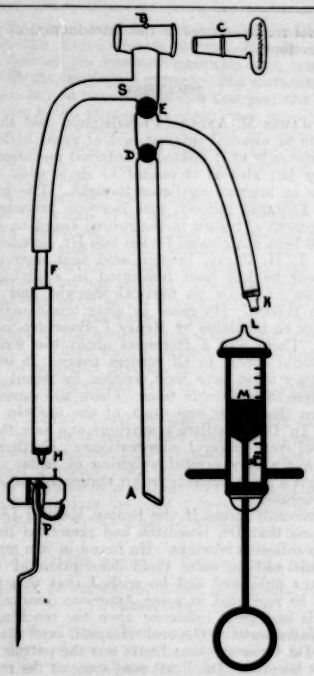
1. A 20 c.c. syringe, instead of one holding 10 c.c.

2. A less curved needle.

3. A slip joint in the needle at P to simplify cleaning and the insertion of new needles.

4. The glass window F should be nearer the needle.

5. The rubber tubing should be much longer to allow greater freedom.



BALL-VALVE APPARATUS.

A—glass centre piece.
B—opening for valve C.
C—glass valve.
D—small metal ball valve.
E—large metal ball valve.
F—glass window for blood.
H—slip joint for needle.
I—intravenous needle.
K—slip joint for syringe.
L—glass syringe with metal joint.
M—metal piston.
S—glass arm to needle.
P—where needle should have slip joint.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE TWENTY-NINTH ANNUAL MEETING WAS HELD AT THE HUNT MEMORIAL BUILDING, HARTFORD, CONN., ON JUNE 10, 11, 12, 1912.

(*Concluded from page 357.*)

DR. VINCENT Y. BOWDITCH, Boston, Mass., read a paper entitled,

MEMORABILIA: EXTRACTS FROM MEDICAL NOTES OF THE LATE DR. HENRY INGERSOLL BOWDITCH.

Reminiscences of teachings of the great Louis. The development of the ova of the snail under the microscope. Diaphragmatic hernia. A therapeutic suggestion by Dr. Amos Twitchell, of Keene, N. H.

Personal reminiscences of the introduction of paracentesis thoracis.

DISCUSSION.

DR. JAMES M. ANDERS, Philadelphia, said the paper was of unusual interest and of great historical value not only as it related to internal medicine and surgery but also as it tended to show what great leaders in internal medicine thought. The law of Milne Edwards, namely, that function precedes the development of organs in the animal kingdom, seems to have been anticipated by the late Dr. Bowditch.

DR. J. H. PRATT, Boston, said that during the last year he had been interested in studying the influence of Louis on medical thought and practice in Boston. He came in close touch with the writings on medicine by Henry I. Bowditch in this work. There was a freshness about the writings that would appeal to all readers today. It seemed as if they must have been written in recent years they were so modern in tone. There was something in them that made one think of the modern writings. In Dr. Bowditch's writings one saw the results of very careful observations. Furthermore there was a very careful weighing of facts There appeared a great modesty in his statements in drawing conclusions.

He recently found in the Boston Medical Library a volume that Dr. Bowditch had presented including his collected reprints. He found in it a memoir of Louis and no more vivid description of Louis was ever published and he wished that this paper might be reprinted in some American journal.

Louis had great influence upon the teachings in the Massachusetts General Hospital and he had heard Dr. Osler say that Louis was the patron saint of that hospital. Dr. Pratt read some of the records of cases there and before the influence of Louis was felt there were no records of physical examinations, only histories and the treatment employed. The first autopsy record he found was a careful detailed and objective description and was by Dr. Bowditch and nothing could show more convincingly how deeply the scientific spirit of Louis had been instilled into his young American student.

DR. VINCENT Y. BOWDITCH, Boston, Mass., and DR. W. A. GRIFFIN, Sharon, Mass., read a paper entitled,

SUBSEQUENT HISTORIES OF TUBERCULOSIS CASES TREATED DURING TWENTY YEARS (1891–1911) AT THE SHARON SANATORIUM.

DISCUSSION.

DR. JAMES M. ANDERS, Philadelphia, said that sanatorium treatment did not cure tuberculous patients but often carried them well along toward recovery. He thought that after the patients left the sanatorium we still had a very important duty to perform in instructing them how to continue a proper mode of life; if they were taught this, particularly if they were symptom-free when discharged, there would be little danger of recurrences. They should be made to understand the necessity for keeping themselves in a condition of good muscular development. The condition of the muscles was the standard of physical efficiency,—the degree of resistance possessed by the patient. That meant that the patient, although practically well, should take systematic, graduated, physical exercises and he was quite sure if physicians insist upon this, they would be doing their patients a great service. It should be remembered that a man at exercise breathes four or five times more oxygen than while at rest. The so-called "internal respiration" was thereby favored for the exchange of oxygen and CO_2 took place in the muscles themselves. The rate of these changes stood in direct relation to the nutrition of the patient. In other words there was no way by which one could promote the nutritive changes so well as by the employment of systematic physical exercises alternated with sufficient rest. During exercises they were expending much more energy than they were storing; it followed, therefore, that they should be instructed to take systematic rest as well in order to keep the muscles in a condition of nutritive equilibrium. All these patients required muscular exercises, walking, games, rest and recreation. The point Dr. Anders wished to emphasize and to maintain was that in attempting to secure the desired resistance their efforts should be directed toward obtaining good muscular development which was synonymous with the highest type of physical development.

DR. LINSLY R. WILLIAMS, a member of the Metropolitan Sewerage Commission of New York, read a paper on

THE POLLUTION OF NEW YORK HARBOR.

It was estimated that amount of fecal matter entering the harbor amounts to about 625 tons daily. That from horses and mules, 40 tons daily. No estimate is made of the amount of urine. The ratio of volume of sewage to the volume of water flowing out of the harbor in each twenty-four hours was as one to twenty-eight. There is an increasing difficulty for the harbor to dispose of the present amount of sewage being emptied into it, this being estimated at one hundred million cubic feet per day. Experiments on the movement of objects floating in the water were made; the oxygen content of the water was estimated and the method of its renewal; the presence of the bacterium coli, etc. The danger of continued and increasing pollution was noted and suggestions made for avoiding it.

DR. W. D. ROBINSON, of Philadelphia, read a paper on

COLDS AND PNEUMONIA.

The bacteria causing colds are usually some strain of the same as those causing pneumonia, or in more or less activity mixed with them. Colds, especially in the very young and old, lead to the development of bronchopneumonia. In pneumonia an acid blood was said to be desirable to reduce the coagulability of the blood and to inhibit the multiplication of pneumococci; in colds, if an active alkalinity of the blood is induced early in the history, a prompt termination of the attack is secured. Dr. Robinson advocated the use of alkaline baths containing two pounds of sodium carbonate to the full tub at a tepid temperature for fifteen minutes. He advocated the use of magnesium sulphate in ten-grain doses internally and as a spray in one or two per cent. solution to the nasopharyngeal membrane.

Dr. Morris Manges read a paper on

THE AUSCULTATION OF THE WHISPERED VOICE.

This has the same physical basis as bronchial breathing, its homologue, and has exactly the same significance as a physical sign. It gives valuable evidence when the patches of infiltration are small and scattered, when changes are heard in the whispered voice long before the breathing becomes bronchial. For some special reason bronchial breathing cannot be elicited in some cases because deep breaths cannot be taken by the patient, either because we are afraid to let the patient breathe deeply, as in recent hemorrhages, or when severe pain or abdominal distention prevent. The whispered voice is not transmitted to the sound lung and cannot mislead us. Dr. Manges considered the use of the whispered voice in tuberculosis and pneumonia.

DISCUSSION.

Dr. Judson Daland, Philadelphia, said that the main point was the usefulness of auscultation of the whispered voice in small consolidations and also where one did not wish to disturb the patient more than was necessary, particularly in cases of hemorrhage.

Dr. Daland thought that the whispered voice was specially useful when they were dealing with disseminated consolidations which were so easily overlooked. He had overlooked many of them. These findings should be checked up by the skiagraph.

Dr. J. M. Anders, Philadelphia, Penn., said much might be obtained by careful inspection. He had never known of one side being affected by a pneumonic process, that the opposite side did not show a greater mobility. Inspection was very important.

Dr. H. F. Williams, of Brooklyn, read a paper entitled,

AN EXPERIENCE WITH HISS' LEUCOCYTIC EXTRACT IN A CASE OF PNEUMONIA.

The patient was a man of 35 in whom the lobar pneumonia was associated with an extensive hemic murmur with marked toxemia. The first injection was 10 cc. and was repeated in a few hours and was continued twice daily until a total of 90 cc. was given. Recovery followed.

DISCUSSION.

Dr. Cleaveland Floyd, Boston, Mass., said that three years ago he had the pleasure of seeing some of the work done in New York with Hiss' extract. Dr. Lucas and Dr. Floyd had treated thirty cases of pneumonia at the Massachusetts General Hospital with leucocytic extract and many of these patients were alcoholics. He did not remember the effect upon the hemic murmurs, but the mortality was lowered to 12 per cent. as compared with the general mortality of 20 per cent. In this group of cases the results of this treatment were very striking. They then tried it in a number of cases where there was a general infection with localization in the lungs and no results were obtained whatever. One striking case occurred in a child with signs of pneumonia and signs of infection of the pleura and all cleared up after several injections of the leucocytic extract.

Dr. J. H. Pratt, Boston, Mass., said that there are two medical services with an equal number of beds in the Massachusetts General Hospital. Dr. Floyd treated the cases of pneumonia on one service with the leucocytic extract. The mortality was very low, but on the other service that year the death rate among the pneumonia cases were equally low although the leucocytic extract was not used. Of course, this might throw a different light upon the situation. The mortality from pneumonia differed from year to year.

Dr. Cleaveland Floyd, Boston, Mass., said there were 30 cases and 27 of these were distinctly cases of lobar pneumonia and three broncho-pneumonia occurring in children with severe infections.

In answer to Dr. Pratt's question, all the cases were treated on one service. The mortality on the hospital service on which the leucocytic extract was not used he did not know. During that winter the cases outside the hospital had a mortality that was very high. There were a number of cases that presented an infection that was general. They all realized that the mortality rate in pneumonia changed from year to year.

Dr. Williams closed the discussion. He said he wished to have it understood that those were desperate cases and not hospital cases, cases that were well nigh hopeless. The giving of 10 cc. of fluid into the subcutaneous tissues was a painful operation and, therefore, he used a hypodermic of morphine together with a local anesthetic.

Dr. Cleaveland Floyd, of Boston, read a paper on

THE RESULT OF DISPENSARY WORK IN THE CONTROL OF TUBERCULOSIS.

The field of the dispensary lies largely between those efforts directed towards the cause of tuberculosis on the one hand and its isolation on the other. Statistics were given of the first five thousand patients examined at the Boston Consumptives' Hospital Clinic, 1907-1909. Dr. Floyd made a plea for co-operation of sanatoria, dispensaries and hospitals in antituberculosis work.

DISCUSSION.

Dr. Charles L. Minor, Ashville, N. C.: A great many patients would think that when discharged they were cured. It was easy to make it plain to a patient of intelligence what would happen if he failed to follow out instructions after discharge from the sanatorium. However intelligent a patient might be he ought to be seen at first every two weeks, then every month, then every three months for at least three years. They should be specially watched by their own or by the dispensary doctor, or by the visiting nurses at shorter intervals. They should drill into their brains the fact that they were not absolutely well and that they must live the right kind of a life.

Dr. Thomas W. Harvey, of Orange, N. J., presented a paper on

SANATORIA AND HEALTH RESORTS AND THE GENERAL PRACTITIONER.

He classified patients according to their financial resources and their varying temperaments. He discussed the selfish egotist who goes through life living off other people; also the man who has sacrificed himself all his life for the sake of his family and

finds himself banished from home to a health resort or sanatorium and knows that his family are in straits. In such a case anxiety and worry more than counterbalance any benefits he may receive. Dr. Harvey commented on the general lack of occupation for patients; their tendencies toward introspection and the incubus of the scales and thermometers were also discussed. The exaggerated ego is common at sanatoria.

DR. THOMAS A. CLAYTOR, of Washington, D. C., read a paper on

THE MORE COMMON FORMS OF CARDIAC IRREGULARITIES WITH A REPORT OF A CASE OF HEART-BLOCK.

The paper was illustrated by lantern slides. These showed sinus or youthful arrhythmia; extra systole; heart-block, partial or complete; auricular fibrillation; and the pulsus alternans. Dr. Claytor urged the graphic study of the pulse and recommended Dr. Thomas Lewis's book on the "Mechanism of the Heart Beat" as the most complete collection of data bearing on the whole subject. Dr. Claytor used a Dressler apparatus (made in N. Y.). He thought that the art of taking tracings should be taught in the schools because without a previous experience with either the polygraph or the electrocardiagraph it would be very difficult to appreciate the various forms of irregular pulse.

DISCUSSION.

DR. J. H. PRATT, Boston, Mass., asked what apparatus he used in getting his tracings. Personally he had had some experience with both the Mackenzie instrument and that of Jacquet. He had found that it was quite easy to acquire technical skill with the Mackenzie instrument. In the majority of cases one can distinguish between the arrhythmia due to extrasystoles and the absolutely irregular pulse of auricular fibrillation, sphygmographic record of the radial pulse. It is a very difficult thing to decide whether you were dealing with extrasystole merely by feeling the pulse.

DR. ROBERT H. BABCOCK, of Chicago, contributed a paper on

CARDIAC SYPHILIS WITH SPECIAL REFERENCE TO AORTIC ANEURYSM AND REGURGITATION AND THE NATURE OF THE WASSERMANN REACTION IN DETERMINING THEIR ETIOLOGY AND TREATMENT

The inestimable value of this test is shown not alone by its being a means of diagnosis but in its demonstration of the fact that treatment supposed to have eradicated the disease has in many cases only prevented the development of obvious lesions and thus lulled the victim into fancied security. Dr. Babcock showed a table of ten cases of aneurysm in which there was a positive Wassermann in five, negative in one, not made in four, of which two give a history of syphilis and two no record of syphilis. In sixteen cases of aortic regurgitation there was a positive Wassermann in eleven, not made in five, of whom four admitted syphilis, one, no history.

DISCUSSION.

DR. DE LANCEY ROCHESTER, said that last year in Buffalo among their hospital cases out of 12 patients with aortic disease seven gave a positive Wassermann reaction. Two of the seven gave a previous history of rheumatism. This year they practiced giving the Wassermann test in every cardiac case that entered his service.

Dr. Rochester had always had excellent results from intramuscular injections and would like to add his testimony to the value of the procedure in this use of mercury rather than the giving of it by mouth. When patients had been taking this treatment and left before it was completed, they were ordered inunctions of mercury and told to be sure to return and report. Sometimes they did and sometimes they did not.

DR. JAMES M. ANDERS, Philadelphia, said that syphilis undoubtedly showed a selective action for the myocardium. Both the endocardium and the pericardium might be secondarily involved as a direct extension of the morbid process. The root of the aorta was the seat of syphilitic lesions which led to dilatations or aneurysms. Formerly the diagnosis of cardiac syphilis was extremely difficult and so far as he personally was concerned it was made by exclusion. But since the introduction of the Wassermann reaction, a reliable means for recognizing syphilis of the viscera was available and the diagnosis was much more readily made than formerly. He agreed with Dr. Babcock that cardiac syphilis was, as a rule, a late or tertiary manifestation, occurring five or ten years after the initial infection. It might be an early manifestation, but this must be rare.

In cases of aortic regurgitation Dr. Babcock mentioned that after excluding rheumatism as the probable cause of the condition one might safely infer that the chief causative factor was syphilis. But he thought that in cases of this kind they should not only exclude rheumatism but the effect of occupation as well. Occupation was one of the leading causes of aortic regurgitation. This was also the view of other clinical observers.

There was another interesting group of cases in which angina pectoris occurs in patients above forty years of age; these were due to syphilis as a rule. Even before the introduction of the Wassermann test the treatment of these cases for syphilis yielded good results.

Not all cases of sacculation of the aorta were due to syphilis, but the majority of them were. He recently saw a case in which there was a history of previous infection; the subject was a young individual. The man had tertiary syphilis and yet the Wassermann reaction test was negative while after salvarsan was given intravenously the reaction became positive. It seemed that the spirochaetae were too few to bring about the reaction.

DR. JUDSON DALAND, Philadelphia, Penn., said that aneurysm, especially sacculation, was not an ordinary dilatation. With regard to syphilis of the heart, and that it was the heart where the spirochaetae pallidae collected, he wished to lay stress upon syphilis of the vessels themselves. There seemed to be a predisposition for the spirochaetae to endanger the circulatory apparatus even more than the heart itself.

Dr. Babcock's statistics were very closely in accord with those expressed by most observers in Europe. Since the introduction of the Wassermann reaction he had studied the question more carefully and he had not been able to absolutely confirm the statements made in Philadelphia that cardio-vascular diseases syphilitic in origin were more frequent here than in Europe; he compared their statistics with European. Diseases of the heart and blood vessels were extremely common and

he was surprised to find, however, that they were less common in his experience here than in experience gained abroad. In the United States occupation played an important rôle.

Another point was the frequency of cases with hypertension causing changes in the heart and circulatory system. Syphilis is a common cause of aortic disease and less common in the United States than in Europe.

He referred to the intramuscular injection of salvarsan being given in one case with benefit, and also pointed out the dangers arising from the use of salvarsan. Of the number of deaths from the use of salvarsan the majority occurred in those who suffered from myocardial degeneration. Sometimes the diagnosis was made prior to the injections and sometimes not.

Dr. Daland felt that intravenous injection of salvarsan was hazardous and dangerous in cardio-vascular syphilis and he practically had forbidden its use. There were a few cases, however, in which it might be given in small quantities, injected into the gluteal muscles, but even this he allowed with reluctance. It was only very occasionally that he allowed such procedures to be resorted to, and only in exceptional cases. One could not lay too much stress upon the possibility of death occurring either suddenly or after a few days after the intravenous injection of salvarsan in advanced cases of cardiac disease of syphilitic origin.

Dr. Arthur K. Stone, Boston, Mass., said that he had shown to the society in 1909 specimens of syphilitic aortitis which showed the spirochaetae in large numbers. Dr. Wright made a number of similar preparations from a number of cases demonstrating the presence of spirochaetae in them all. It had become axiomatic at the Massachusetts General Hospital that all cases of aortitis and aortic valvular disease coming on after the age of forty without acute infective cause were, practically, syphilitic. The results in two cases from the use of salvarsan were very satisfactory and there were no ill effects in either case, except a localized edema of the arm. One of them had already died but after several months of relief.

Dr. J. H. Elliott, Toronto, asked Dr. Babcock if he believed that occupation played any rôle in the development of these aneurysms.

In many of these cases the Wassermann reaction would be positive when done by competent men, but the technic must be perfect.

With the use of salvarsan in these cases he said he had had very little experience although they used it in the hospital in various forms of syphilis. He said he was surprised to hear Dr. Babcock speak against its use intravenously and advise it intramuscularly. The pain caused by intramuscular injections of salvarsan was often intense and sloughing might follow, but he had seen no ill effects from the intravenous use of it.

Dr. Robert H. Babcock, Chicago: As to occupation being a cause af aortic aneurysm, he said that he had never seen a case of aortic aneurysm in which occupation was recognized as being the sole cause, although he said he could already understand that in old people with an aortic sclerosis of deforming type aneurysm of the aorta might result from a strain. But he doubted seriously that the aortic wall would give way in young individuals without some pathological lesion underlying it. The healthy aorta can withstand any internal pressure from physical exertion. The possibility, or the probability even, of occupation alone as a cause of aortic aneurysm did not appeal to him as rational.

Regarding the young individual getting the Wassermann reaction with negative results he questioned the accuracy of the reaction. The Wassermann reaction is reliable in its positiveness but not in its negativeness. An individual may still have syphilis and yet the Wassermann reaction be negative. This reaction should never be undertaken except by a worker whose methods are absolutely reliable. A course of antisyphilitic treatment would not help all cases. One could not expect any treatment would cure an area of fatty degeneration in the heart muscle to be replaced by normal elements. The same applied to the aortic walls. Vigorous treatment sometimes relieves these patients subjectively and gives a chance for possible restoration or possibility for compensation when employed in conjunction with rest and the administration of other remedies.

As to the use of salvarsan Dr. Babcock said he had grown more conservative and timid than formerly. It would be very unpleasant to have a patient die after the injection of this agent and he had never advised the intravenous injection of salvarsan in cases of heart or aortic disease. Many cases of intramuscular injection had been followed by bad sloughs of the buttocks. If he was to use salvarsan he would first tell the patient what the dangers were and would make him sign a paper that he knew the danger and that he voluntarily chose this form of treatment.

Dr. John D. Thomas reported

TWO CASES OF RECURRENT LARYNGEAL NERVE PARALYSIS COMPLICATING MITRAL STENOSIS.

Dr. Thomas said that these cases should be classed not necessarily as following or complicating mitral stenosis alone, this being the lesion most often causing the paralysis, but as due to any of the cardiac lesions which bring about the same pathologic condition excluding, of course, aneurisms. Several cases besides the author's were cited.

Dr. E. J. A. Rogers, of Denver, presented a paper on

THE INFLUENCE OF MENTAL ATTITUDE IN THE TREATMENT OF DISEASES OF THE ORGANS OF RESPIRATION AND CIRCULATION.

The author endeavors to produce in the patient a confident expectant attention with an entire suppression of the anticipation of failure and the constant presence of a subjective sense of physical control. This method he applies to patients suffering from tachycardia and purely emotional disturbances of every class and even in organic heart lesions he finds that the attitude of constant fear and the anticipation of disaster give place to a state of physical comfort and confidence in the ability to control the organ. Several cases were cited.

Before adjourning the following officers were elected: President, Dr. Charles L. Minor, Asheville, N. C.; vice-presidents, Dr. James M. Anders, Philadelphia, and Dr. C. D. Alton, Hartford; secretary and treasurer, Dr. Guy Hinsdale, Hot Springs, Virginia. The next meeting will be held in Washington, D. C., May 6 and 7, 1913, in connection with the Ninth Congress of American Physicians and Surgeons.

Book Reviews.

Kidney Diseases. By W. P. HERRINGHAM, M.D., F.R.C.P., Physician to St. Bartholomew's Hospital, etc., etc. With Chapters on Renal Diseases in Pregnancy by HERBERT WILLIAMSON, M.D., F.R.C.P., Assistant Accoucheur to St. Bartholomew's Hospital, etc., etc. London, Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E. C. pp. 378, illustrated. 1912.

In this volume the attempt is made to set forth the different disorders of the urinary system, both according to established teachings and in the light of the personal observations of a large hospital experience. It is an exposition of the subject which may be read with profit by those who desire a discussion not too advanced or detailed of what is known upon the many abnormal conditions included, since the list of these comprises not only the commoner diseases, but also the rarer conditions, such as chyluria, albumosuria and paroxysmal hemoglobinuria. Of nephritis no minute histological subdivisions are distinguished, although the pathological findings corresponding to clinical types are described. The matter based upon personal experience and upon hospital statistics is illustrative rather than productive of original conclusions. The description of individual cases and the tabulation of small series of cases forms too great a proportion of the book to sustain its interest except for elementary students. The weight of this criticism, however, is lessened by the ease and clearness of the literary tyle. The perusal of an occasional chapter gives one the impression of having been to a clinical lecture of great merit.

Diseases of Women. By A. MARTIN, Professor of Gynecology and Director, the Gynecological Clinic of the University of Greifswald; and PH. JUNG, Professor and Chief Attending Physician to the Gynecological Clinic of the University of Greifswald. Translated by Henry Schmitz, M.D., Professor of Gynecology, Chicago College of Medicine and Surgery. Royal octavo; pp. 500; 185 illustrations, many in color. New York: Rebman and Company. 1912.

The desire to familiarize English-speaking students and gynecologists with A. Martin's text-book of gynecology is most natural to any one who is familiar with Martin and his work, and the effort to do so by a translation is most commendable. The work is well known in Germany where it has reached its fourth edition. The third edition, issued in 1893, was exhausted in three years. In 1906 the present edition appeared, bearing on the title page the name of Jung as collaborator with Martin. The work was largely rewritten and embodied the great progress made in gynecology in the interval which had elapsed since 1893. Of the quality of the work itself little need be said; the name of the author is sufficient guarantee of its high merit. It is from the pen of a master and is in a clear and distinctive style. The subject is presented comprehensively and briefly.

The translation is not so fortunate. A text-book is, of necessity, a little behind the forefront of progress, for it should contain the more generally received teachings and procedures and cannot hope to keep abreast of the periodical literature. But a translation appearing six years after the original, as this does, may well expect to find itself falling to the rear, through no fault of the author. In this case the English work does not fairly represent the original. The translation has been made with care, the text being followed almost word for word. The result, though intelligible, is not English: the words are English, but the structure is German. Every page suffers from this defect. As an example of the bookmaking art, the German work is superior to the translation, especially in the printing of the excellent illustrations which are the same in both.

A Text-book of Practical Therapeutics. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Medical College Hospital. Fourteenth edition, pp. 984. Illustrated. Philadelphia: Lea and Febiger. 1912.

It may safely be said that few medical books reach a fourteenth edition. The reason that Dr. Hare's Text-book of Practical Therapeutics has had this distinction is no doubt due, essentially, to its extremely practical character, to its general arrangement and to its brevity in the discussion of individual drugs and methods of treatment. These qualities render it useful not only as a text-book but also as a ready volume of reference for physicians in practice. The book has been revised to meet the advances in therapeutics. The author has managed to compress into about three pages the subject of Salvarsan, but in that space he gives the essential facts at present known about this drug and its uses. In general we commend the book in its present form as we have the previous editions. The size of the volume has not been materially increased.

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MALARIA AND MATERIAL WELFARE.

THE rather cynical view has been held that considerations of pounds, shillings and pence have, more than altruism, advanced sanitary science; that wherever business undertakings are waiting, health measures are bound to be formulated and to be rigorously enforced. It would seem indeed that those diseases which have impeded commerce have been the first to disappear. No infections have been brought so near the vanishing point as typhus, small-pox, yellow fever and the tropical malarias and dysenteries. The sanitarian's authority waxes great in the community which grasps the idea that progress in hygiene is essential to assured and profitable business development. On the Amazon the doctor is paramount. International quarantines have been established very largely (though not of course entirely) as a help to business. If great commercial interests were involved in the activity of the tubercle bacillus, consumption might already have been much more diminished. Typhoid fever, the American disease, will no doubt become extinct as soon as our people grasp the meaning of its economic destructiveness.

In view of such facts of political economy it is interesting to review the malaria situation in the United States. This disease was probably always endemic in our own land. The failure of the early colonists in Virginia seems to have been largely due to it. Certain it is that the plasmodium markedly retarded the white man's advance over the North American continent, especially throughout the Middle West, the Gulf States, and thence to the Mississippi and beyond. In many larger regions once malarious the disease has lessened greatly in frequency and virulence owing to the reclamation of swamp areas, and the lessening of the number of possible breeding places of Anopheles; but the disease is still enormously prevalent, especially in the South. The effect of malaria in lessening or destroying the productive capacity of its victims among the people, is enormous. The estimate is probably very conservative, that one-fourth the earning capacity of a malaria sufferer is lost, and our loss by reason of undeveloped regions owing to the presence of malaria is very great; territory containing most fertile soil is practically abandoned. With comparatively inexpensive and perfectly effective drainage measures and other anti-mosquito work, millions of acres of inestimable richness could be utilized.

The Delta region in Mississippi, which extends from the mouth of the Yazoo nearly to the Tennessee line, is the second best farming land in the world, having only one rival—the Nile valley. Ten years ago Prof. Herrick[1] wrote that much of this land could be bought at from $10 to $20 an acre. Thousands of acres were then still covered with the primeval forest. This land is capable, without artificial fertilization, of producing two or more bales of cotton to the acre; a bale to the acre can be produced for $13, leaving a net profit of from $20 to $40 for each bale, or $40 to $80 or more for a two or three bale acre. Such land should be an excellent investment at even $300 an acre; yet the market price for land in that Delta region does not (or did not ten years ago) approach anywhere near that figure, largely because whites object to living on it by reason of the malaria they would have to suffer. When the Delta is made malaria free "it will be the richest and most populous region in the United States."

Dr. Howard[2] believes that with a general popular appreciation of the industrial losses caused primarily by Anopheles "it is inconceivable that the comparatively inexpensive measures necessary should not be undertaken by the general governments, by the state governments, and by the boards of health of communities, just as it is inconceivable that the individual should suffer from malaria when he has individual preventives and remedies at hand." Large scale drainage measures by the general government, involving large sections of valuable territory,

[1] Herrick, G. W. The Relation of Malaria to Agricultural and Other Industries of the South. Pop. Science Mo., April, 1913.

[2] Howard, L. O.: Economic Loss to the People of the United States Through Insects that carry Disease. Bull. 78 (Revised) Bureau of Entomology, U. S. Dept. Agriculture.

have been planned and are practically under way; New Jersey, New York and other states are beginning to work; communities throughout the country, by their boards of health, are showing signs of activity; and anti-malaria literature is educating the people. All this interest should be intensified, the importance of the work should be emphasized, and universal relief from malaria should follow as the day the night.

A CENTURY OF MEDICAL SERVICE.

THE recently published ninety-ninth annual report of the trustees of the Massachusetts General Hospital records the work of this institution for the calendar year 1912. During this period, 6629 patients were admitted to the hospital, and 22,629 new cases to its out-patient department, where a total of 136,095 visits were made. In the medico-mechanical department 888 new cases were treated. At the McLean Hospital, the whole number of patients under treatment was 380, and at the Convalescent Hospital 712. From the General Hospital Training School 34 nurses were graduated, and from the McLean Hospital Training School 16.

During the year a general reorganization of all the medical services of the hospital, previously inaugurated by the reorganization of the surgical staff, was established, so that there are now two services in the medical department, with a subsidiary department of pediatrics. Each of these has a staff of physicians, presided over by a chief with continuous service. There are also special departments of neurology, laryngology, dermatology, and pathology. This arrangement of services has proved highly satisfactory and efficient.

The report makes particular mention of the great loss sustained by the hospital in the death of Dr. Maurice Howe Richardson and of Dr. Arthur Tracy Cabot, of whom it is said that "their lives were an incentive to their profession and a blessing to humanity."

Attention is called to the new Nurses' Home now in process of erection on Fruit Street. Especial emphasis also is laid on the great need for an administration building and of suitable quarters for the orderlies and men employees of the hospital.

This report marks the close of one hundred years' service of the Massachusetts General Hospital, whose first board of trustees was elected in February, 1813. As that time the hospital received from the State the gift of the Province House, valued at $40,000, and some cut stone worth about $35,000.

"During the one hundred years' existence of the hospital that is all the assistance the Commonwealth has given. The impression abroad is that it is a state hospital and receives state aid, and the trustees in making this report wish to impress upon the public that while it is to all intents and purposes a state hospital, inasmuch as it receives patients from all over the state and never questions their residence in emergency cases (even if they are residents of other states) yet so far as receiving assistance is concerned it is not a state institution."

The century of service thus concluded has been memorable in the annals of medical history. All loyal friends of the institution may well wish that its second century, now auspiciously begun, may prove equally distinguished in scientific progress and in service to the community and the profession.

THERAPEUTIC VALUE OF WAR.

THE following is an authentic copy of a letter recently received at a large Boston hospital in response to a note of inquiry addressed to a former patient:—

"Dear Sir:

"In regards to your letter from 20 inst., about George K———, who was sick last year and was discharged from this Hospital by the means, to transfer at ———— Hospital to die there, but we did not. I brouth him over Greece and he is all right and fighting in Balkan State against Turkey and according to his letter which I received today he claims he has killed more than two hundred Turks.

"I expect him to be here after the war settled there and then I will bring over.

"Me Remain, "Respectfully yours."

Despite its defiance of medical prognosis, there is something delightful in the suggested spectacle of this valorous Greek, supposedly transferred to another institution to die among aliens, but instead transported to glorious action on his native heath, meting out to countless and unspeakable Turks the death to which he had been consigned. It is sincerely to be wished that he may indeed return to put his physicians to the blush. The tale of his exploits would be well worth the hearing, even though he "remember with advantages what deeds he did." Perhaps more incurables would recover, if, like this militant, they were sent to the battlefield instead of the sanatorium.

MEDICAL NOTES.

London Death-Rates for January.—Statistics recently published show that the total death-rate of London for January, 1913, was 17.8 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 26.0 in Shoreditch, a crowded eastern slum, and the lowest was 13.1, in Lewisham, an open suburb on the south.

A Prolific Parent.—Report from St. Louis on March 2 states that Mrs. Ida Hurry, of that city, though only 35 years old, is already the mother of 26 children. During her married life of 20 years, she is said to have passed through an equal number of pregnancies, six of which were of twins.

A Living Centenarian.—Mrs. Anna E. Rutan, of Newton, N. J., celebrated recently the supposed centennial anniversary of her birth. She has 23 living descendants, including two great-great-grandchildren. Her health is said to be excellent.

Death of a Centenarian Bride.—In the issue of the Journal for Jan. 30 (Vol. clxviii, p. 176), we noted the intended marriage of Mrs. Marcellina Elisalda, said to be 105 years of age. This marriage took place, but we learn with regret that the bride, Mrs. Leon, died five days later.

Seizure of Adulterated Butter.—Report from Chicago on Feb. 28 states that federal revenue officials have recently seized in the cold storage warehouses of that city 25,000 pounds of butter alleged to be adulterated with over 16% of water.

BOSTON AND NEW ENGLAND.

Lecture by Dr. Cabot.—At a meeting held in Boston last week under the auspices of the committee on public health education among women of the American Medical Association and the department of public health of the Women's Municipal League, Dr. Hugh Cabot delivered a lecture on "The Responsibility of the Community for the Prevalence of Social Diseases."

Cambridge Visiting Nursing Association.—The ninth annual meeting of the Cambridge Visiting Nursing Association was held in that city last week.

"The secretary reported 19,210 visits to 2216 patients during the year. There were 789 maternity cases and this work has been found to be of the greatest value. There have been nine nurses in residence at the headquarters, 35 Bigelow Street.

"The treasurer's report showed an expenditure of $8549.14 and a balance in the treasury of 73 cents. Sixty-one per cent. of the cost of maintaining the service has been met by payments from patients and the remainder by subscriptions and donations from members of the Association. There is a sliding scale of charges and patients pay according to their means, and all destitute cases are taken free.

"The president made an appeal for increased interest and support by the public, in order that the Association may not be hampered in the extension of its usefulness by lack of funds."

American Academy of Dental Science.—At a meeting of the American Academy of Dental Science, held in Boston on Wednesday, March 5, Dr. M. C. Smith, of Lynn, Mass., presented a paper on "The Relation of Some of the Ductless Glands to the Development of the Face and Oral Cavity," which was discussed by Dr. William J. Mixter and Dr. Isadore H. Coriat, of Boston.

Gift to the Noble Hospital.—On Feb. 27, the trustees of the Noble Hospital, at Westfield, Mass., announced the gift of an administration and training school building to the hospital by Mrs. James Arthur Crane as a memorial to her late husband.

Lawrence General Hospital.—The recently published thirty-seventh annual report of the Lawrence (Mass.) General Hospital and Children's Home records the work of these institutions for the year ending Aug. 31, 1912. During this period 1487 patients were admitted to the hospital, and 1575 were treated in its out-patient department. In June it was found necessary to discontinue the Children's Home, to enable the opening of a ward for sick and crippled children in the city. In the maternity department 128 women were cared for. The district nurse made 4509 visits to 335 patients. Seven pupil candidates were graduated from the training school.

Seizure of Illicit Drugs.—Considerable quantities of morphia, heroin, and cocaine were seized at a raid made on an apartment house by the police in Boston last week.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, March 1, 1913, is 284, against 272 the corresponding week last year, showing an increase of 12 deaths, and making the death rate for the week 20.14. Of this number 145 were males and 139 were females; 276 were white and 8 colored; 170 were born in the United States, 110 in foreign countries, and 4 unknown; 59 were of American parentage, 189 of foreign parentage; and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 55 cases and 4 deaths; scarlatina, 61 cases and 2 deaths; typhoid fever, 6 cases and 2 deaths; measles, 257 cases and 4 deaths; tuberculosis, 47 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 3, heart disease 48, bronchitis 2. There were 15 deaths from violent causes. The number of children who died under one year was 53; the number under five years 71. The number of persons who died over sixty years of age was 88. The deaths in hospitals and public institutions were 105.

Included in non-residents are 3 cases of diphtheria, 9 cases of scarlet fever; and 1 death from typhoid fever brought to Boston for treatment from outside cities and towns.

Cases of infectious diseases reported to the Boston Board of Health for the week ending March 4, 1913: Diphtheria, 54; scarlatina, 62; typhoid fever, 4; measles, 262; smallpox, 0, tuberculosis, 56.

The death rate of the reported deaths for the week was 20.77. Non-resident cases are included in the total cases.

NEW YORK.

DISTRICT HOSPITALS FOR TUBERCULOSIS.—In a formal statement just issued on the subject of tuberculosis the State Board of Charities has recommended that the state should establish district hospitals, on the plan of the Raybrook Sanitarium in the Adirondacks, for the early and curable cases of the disease, leaving to the local authorities, as a rule, the care of the more advanced cases. This plan would permit of enlarged facilities for the care of all classes of tuberculous patients, and of a most desirable classification, which the Board says, appears impossible to secure in the smaller local institutions as at present planned or constructed.

ABUSE OF DISPENSARIES.—At a meeting of the New York County Medical Society, held on February 24, a committee which had been appointed on dispensary abuse reported in favor of a regulation requiring that all applicants for treatment at dispensaries should give their personal and family incomes, number in family, and amount of rent paid. This recommendation was adopted by the Society after it had been so amended as to require that, except in emergency cases, this information should be given under oath.

CHEMISTS' CLUB BUILDING.—The Chemists' Club, in its building on East 41st Street, has now thrown open to the public on four days of the week its valuable library, said to be the largest chemical library in the country. In addition, it has established a Department of Research, which will be open to the public on the payment of fees.

DR. FRIEDMANN IN NEW YORK.—Dr. F. F. Friedmann, who arrived recently in New York from Germany, has taken an office on Fifth Avenue, and was announced to commence the treatment of patients with his tuberculosis serum on March 3. Dr. J. F. Anderson of the Hygiene Laboratory, representing Surgeon General Blue of the U. S. Public Health Service, was in conference with Dr. Friedmann for three hours on Feb. 27, and is said to have reported on his return that the latter had declined to submit specimens of his cultures for investigation except under certain conditions, one of which was, that any one to whom such were intrusted should consent to receive personal instructions from himself (Dr. Friedmann) for a period of not less than six weeks.

FAILURE OF ANTI-VIVISECTION BILL.—It is gratifying to learn that an anti-vivisection bill was recently killed at Albany, the State Senate judiciary committee refusing to report it. It would seem likely, therefore, that any similar bills presented during the present session of the Legislature would share the same fate.

RECENT HOSPITAL BEQUESTS.—Under the will of the late Mrs. William M. Tailer of New York $25,000 is left to the endowment fund of the dispensary department of the University and Bellevue Hospital Medical College, $7,000 to the Home for Incurables at Fordham, and $5,000 to the New York Orthopedic Dispensary and Hospital.

A Centenarian.—William Redmond of Oakhurst, near Long Branch, N. J., died on Feb. 22 at the age of 103 years. He was a native of Tuckahoe, N. J., and had been a farmer all his life, and it is told of him that he danced a jig on the occasion of his hundredth birthday, in January, 1910.

St. Lawrence State Hospital.—The recently published twenty-sixth annual report of the board of managers of the St. Lawrence State Hospital, at Ogdensburg, N. Y., records the work of that institution for the year ending Sept. 30, 1912. During this period 1102 men and 1222 women patients were under treatment in the hospital, a total of 2324. A class of 22 nurses was graduated from the training school. The hospital is much overcrowded, and attention is called to the urgent need of provision for the addition of two new wings to the Eastwood building.

Cancer Research at Columbia University.—It was announced on March 5 at Columbia University that a sufficient sum is available for the immediate erection of the cancer research laboratory provided under the George Crocker Special Research Fund.

Proposed Legislation for Infant Protection.—Report from Albany, N. Y., states that on March 5 a bill was introduced before the General Assembly providing that all artificial or patented infant foods must be approved by the state health commissioner, and requiring that every certificate of death of an infant under one year of age must be supplemented by the physician's signed statement of the method of feeding employed.

Current Literature.

Medical Record.

February 22, 1913.

1. *Wright, B. L. *The Treatment of Diseases of Vegetable Parasitic Origin by Deep Injections of Mercury.*
2. Freudenthal, W. *Personal Observations with Suspension Laryngoscopy.*
3. Mans, L. M. *The Effects of the Beerless Exchange on the Morals and Health of Our Soldiers.*
4. Gleitsmann, J. W. *Paralysis of the Recurrent Nerve Due to Circulatory Lesions; with Remarks on Recent Therapeutic Measures.*
5. Scripture, E. W. *The Care of Speech Defectives.*
6. *Fischer, L. *Large Doses of Antitoxin Given Early—A Means of Preventing Laryngeal Stenosis.*
7. Vandegrift, G. W. *The Etiology of Iritis.*
8. Pearson, C. B. *A Plea for Greater Consideration for the Opium Addict.*

1. Wright reports a few more cases of infectious disease treated by deep injections of mercury with good results. This time he includes two cases of typhoid fever, one of bronchopneumonia, four of furunculosis, three of gonococcus infection and thirty-two of colon bacillus infection.

6. Fischer believes that large doses of antitoxin given early in diphtheria constitute a means of preventing the complication of laryngeal stenosis. In support of his contention he reports four cases, all of which terminated favorably. He does not state that a bacteriologic diagnosis of diphtheria was made in any of the cases. [L. D. C.]

New York Medical Journal.

February 22, 1913.

1. Hamilton, A. M. *The Diagnostic Significance of Pain in Tabes.*
2. Clark, L. P., and Stowell, W. L. *A Study of Mortality in Four Thousand Feebleminded and Idiots.*
3. *Wolbarst, A. L. *Contradictory Findings in the Wassermann Test.*
4. Francine, A. P. *The Day Camp for Tuberculosis.*
5. Kahn, M. *Maimonides the Physician.*
6. Garretson, W. V. P. *Functional Nervous Conditions.*
7. McLaughlin, A. J. *Sewage Pollution of the Great Lakes.*
8. Bates, M. E. *The Colorado Method for the Examination and Care of Public School Children.*
9. Janeway, T. C. *Nephritic Hypertension.*

3. Wolbarst emphasizes the contradictory findings of different serologists in the Wassermann test and submits that more than one expert should perform the test in cases where the diagnosis depends upon it. All mention of results of the Wassermann test should be accompanied by the name of the serologist who made the test, in order that the measure of accuracy and skill employed may be estimated. The serologist should be selected with the same care as is used in the selection of a consultant in any other branch of medical science. [L. D. C.]

The Journal of the American Medical Association.

March 1, 1913.

1. Pearce, R. M. *The Methods of Appointing Hospital Internes.*
2. Wernicke, A. *Nephroptosis and Nephropexy, with Special Reference to the Basket-Handle Operation.*
3. Casamajor, L. *An Unusual Form of Mineral Poisoning Affecting the Nervous System; Manganese?*
4. Lintz, W. *A New Apparatus for Use in Blood-Cultures.*
5. Sluder, G. *A Method of Tonsillectomy by Means of the Alveolar Eminence of the Mandible. A New Guillotine and a Snare.*
6. Oldenborg, H. A. *Exercises in the Treatment of Ptosis of the Abdominal Organs.*
7. Stone, I. S. *The Conservative Treatment of Salpingitis by Uterine and Tubal Injection.*
8. Knox, H. A. *Some Practical Psychotherapy.*
9. Parmalee, A. H. *Epidemic Cerebrospinal Meningitis.*

10. MANGES, M. *The Disappearance of Sugar After the Removal of Tumors in Diabetics.*
11. JENNESS, B. F. *Burnam's Test for Formaldehyd in the Urine. A Study of Two Hundred Cases.*
12. MADDOX, R. D. *A New Apparatus for Filling Pipets.*
13. ZAUN, J. J. *An Argyll Robertson Pupil Becoming Normal After Mercury and Salvarsan.*
14. GREEN, G. R. *Sporadic Cerebrospinal Meningitis: Recovery.*
15. ALLAN, W. *Thymol for Taenia Saginata.*
16. ALLAN, W. *The Emetic Treatment of Amebic Dysentery.*

JOURNAL OF INFECTIOUS DISEASES.

JANUARY, 1913.

1. HEKTOEN. *On the Occurrence of an Isolated Antibody in the Cerebrospinal Fluid.*
2. *WADE. *The Laboratory Diagnosis of Glanders.*
3. WAITE. *Two Lincoln (Neb.) Typhoid Fever Epidemics of 1911 and 1912.*
4. KING AND RAEBLACK. *Studies on the Virus of Hog Cholera. Preliminary Report.*
5. DAVIS. *A Bacillus from Spontaneous Abscesses in Rabbits and Its Relation to the Influenza Bacillus.*
6. NICOLL AND WILSON. *General Gonococcus Infection in a Male Child Without Evidence of Urethritis.*
7. *RAEBLACK. *On the Cultivation of the Treponema Pallidum.*
8. DEWITT. *Preliminary Report of Experiments in the Vital Staining of Tubercle. Studies on the Biochemistry and Chemotherapy of Tuberculosis.*
9. WARDEN. *Studies on the Gonococcus.*
10. REICHEL. *Fixed Hog Cholera Virus.*
11. DICK. *On the Origin and Action of Hemolytic Complement.*

2. Wade uses in the complement fixation test for glanders an unshaken antigen, which has been filtered through a Berkefeld filter. This is believed to be the most stable and reliable compound. Several strains of the B. mallei should be used in the preparation of antigen and material for agglutination purposes. The use of the fixation method, united with the agglutination reaction furnishes a reliable means for early diagnosis of glanders.

7. After pure cultures of the Treponema Pallidum are secured by inoculation and re-inoculation of the testes of rabbits, the material may be grown in bone serum with the addition of pieces of animal tissue. The amount of tissue necessary for the growth of the organism is found to be variable, as is the degree of anaerobiosis to which the culture is subjected.

[L. H. S.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

FEBRUARY, 1913.

1. *ELSBERG, C. A. *Experiences in Spinal Surgery.*
2. RIEBEL, E. C. *Subcutaneous Rupture of the Diaphragm and Positive Pressure (Meltzer).*
3. WERELIUS, A. *Do the Parathyroids Functionate in Intrauterine Life?*
4. SAMPSON, J. A. *The Influence of Myomata on the Blood Supply of the Uterus, with Special Reference to Abnormal Uterine Bleeding.*
5. *FULLERTON, W. D. *Typho-Tuberculous Tubo-Ovarian Abscess.*
6. ABBE, T. *How Can We Improve the Results of Our Operations for Cancer?*
7. PACKARD, H. *A Possible Factor in the Causation of Cancer.*
8. BRENNECKE, H. A. *Meckel's Diverticulum and Complications.*
9. LUKE, H. C. *A Case of Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery.*
10. WILLIAMS, E. M. *A Suggestion Tending to Simplify and Make More Accurate the Closure of the Posterior Edges of the Wound Margin after Excision of Saddle Ulcer of the Stomach.*
11. HONAN, W. F., AND HASSELER, J. W. *Experiences with Intravenous Anesthesia. Preliminary Report.*
12. MCCURDY, S. L. *Z-Plastic Surgery: Plastic Operations for Elongate Cicatrical Contractions of the Neck, Lips, and Eye-lids and Across Joints.*
13. NOLAND, L. *The Whitehead Operation for Hemorrhoids; A Report of 200 Cases.*
14. FLETCHER, F. *The Cure of Procidentia Uteri in Elderly Women; A New Intra-Abdominal Technic.*
15. REDER, F. *How to Secure the End of a Subcuticular Suture.*
16. MORAN, J. F. *Obstetrical and Surgical Treatment of Puerperal Eclampsia.*
17. SCHLEY, W. S. *Dilatation of Tight Urethral Strictures Causing Retention.*

1. Elsberg's article on spinal surgery is of extreme interest. He believes the mortality of laminectomy should be very low. A wide exposure of the cord is necessary in order to avoid handling of the cord, great respect for which should be observed. The functions of the spine are well preserved by the bodies of the vertebrae, even after the removal of six or seven spinous processes. Very careful closure of the dura and other tissues is necessary. Paresthesias and root pains are due to bleeding into the subarachnoid space and can be prevented. A laminectomy wound should never be drained. No artificial immobilization of the spine is necessary except in the cervical region. The author does not believe in too long delay of operation for symptoms of spinal pressure even in the face of a positive Wassermann reaction. A glioma may be present in addition to syphilis, or if the syphilitic lesion does not clear up immediately under salvarsan an operation is indicated. There is not the danger generally supposed from the escape of cerebrospinal fluid on opening the dura. Retention of urine is liable to be present for several days after operation; also marked abdominal distention.

5. Fullerton's case proves that in post-typhoid pelvic abscess the B. typhosus probably plays a more important rôle than is usually suspected. Puerperal infections coincident with or following typhoid may be caused by the typhoid organism. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

FEBRUARY, 1913.

1. *NUTTALL, G. H. F. *Lectures on the Herter Foundation.*
2. *WEED, L. H., CUSHING, H., AND JACOBSON, C. *Further Studies on the Rôle of the Hypophysis in the Metabolism of Carbohydrates. The Autonomic Control of the Pituitary Gland.*
3. *HAMMAN, L., AND SLOAN, M. F. *Induced Pneumothorax in the Treatment of Pulmonary Disease.*

1. Under spirochetosis, Nuttall includes those diseases of man and animals due to the spiral microorganisms known as spirochetes. In this paper he confines himself to those which produce blood infections—the relapsing fevers. After discussing this disease in birds he describes human relapsing fever in tropical Africa, its transmission by means of ticks, lice and bugs. He describes its incidence in cattle, and finally, the cultivation of spirochetes.

2. In this paper, which represents an immense amount of work on a most difficult subject, the

writers, after describing their experiments and investigations, conclude that the pituitary body—more particularly its posterior lobe—plays a significant rôle in the metabolism of carbohydrates, and its action in this respect is under the control of fibers which reach the gland by way of the superior cervical sympathetic ganglion. Stimulation of this nervous pathway, at the so-called sugar center in the fourth ventricle, at the superior cervical ganglion, and by excitation of the pituitary body itself liberates a chemical substance which causes glycogenolysis and glycosuria independent of any possible nervous impulse, reaching the glycogen-holding cells of the muscles or abdominal viscera.

3. In a fair and judicial article, Hammon and Sloan describe the history of pneumothorax cases, the selection of cases for treatment, the various methods, especially Brauer's method by incision down to the pleura and Forlanini's puncture method. They prefer the latter method. They discuss the dangers of this treatment, the chief of which are air embolism and infection. They describe in detail their apparatus and technic. They describe the pathological anatomy of the collapsed lung, the most striking change of which is the extreme fibrous tissue formation, and consider briefly the clinical symptoms of induced pneumothorax. They review their cases as to (1) whether this procedure was followed by death or a serious complication (3 cases); (2) when it was impossible to produce a pneumothorax (3 cases); (3) when only an incomplete pneumothorax could be produced (7 cases), and when a complete pneumothorax was produced (7 cases). This procedure has a striking effect in reducing cough and expectoration; carefully performed it is without danger; it is of great value in treating pulmonary hemorrhage. In selected cases it offers a prospect of temporary and permanent relief, when the usual methods of treatment have been unsuccessfully tried. [J. B. H.]

British Medical Journal.

February 8, 1913.

1. Hort, E. C. *Vaccines and Fever.*
2. Flower, N. *Apyrexial Typhoid.*
3. Woodman, E. M. *A Simple and Rapid Method for the Administration of Subcutaneous Salines.*
4. Jona, J. L. *Adrenalin in the Emergency Treatment of Non-corrosive Poisoning by the Mouth.*
5. Whole, H. *The Late Vasomotor Paresis Due to Adrenalin.*
6. Hurry, J. B. *The Breaking of the Vicious Circle.*
7. Abercrombie, R. *The Treatment of Muscular Paresis by Means of Eccentric Movements.*
8. Simon, H. *Reynaud's Syndrome and Syphilis.*

Edinburgh Medical Journal.

February, 1913.

1. *Bramwell, B. *On Malingering.*
2. *Turner, A. L., and Fraser, J. S. *Direct Laryngoscopy, Tracheo-Bronchoscopy and Esophagoscopy.*
3. Mitchell, A. P. *Treatment of Syphilis by Salvarsan.*
4. Greig, D. M. *Tumor of Breast Recurrent Six Times During Thirty Years.*

1. Bramwell and others interestingly discuss malingering, with special reference to the National Insurance Act and the greatly increased number of cases likely to result. His discussion as to the relation between traumatic neuroses and true malingering is of value.

2. In a paper with numerous illustrative cases and an excellent plate, the writers describe in detail the technic of the direct method of examining the larynx, trachea, bronchi and esophagus, and the various conditions in which this direct method will prove of value. [J. B. H.]

The Indian Medical Gazette.

February, 1913.

1. Harnett, W. L. *The Differential Blood-Count in Dengue.*
2. *Hossack, W. L. *The Problem of Dengue, Three-Day and Seven-Day Fever.*
3. Lalor, N. P. O'G. *A Teleological Working-Theory of the Asymbiotic Relations of the Malarial Plasmodium to Its Alternative Hosts—Man and the Anopheles Mosquito.*
4. Hehir, P. *Sanitary Organization of Our Army in India in War.*
5. Smith, C. H. *Effect of Overcrowding in Barracks on Tubercular Affections Among Gurkhas.*
6. Rutherford, T. C. *Report on Cases of Leprosy Treated with Leproline During 1911-12 in the Bilaspur District.*

2. Hossack believes that the Calcutta epidemic of 1912 was identical with previous epidemics of dengue, clinically distinguishable from three-day fever, but indistinguishable from seven-day fever. He disbelieves in the theory of its transmissibility solely by a specific insect carrier, the phlebotomus, but considers it probably caused by an ultramicroscopic organism endemic in Calcutta at present. [R. M. G.]

Münchener Medizinische Wochenschrift.

No. 2. January 14, 1913.

1. *Bruck, C., and Glück, A. *Effect of Intravenous Infusion of Aurum-Kolium Cyanatum (Merk) in External Tuberculosis and Lues.*
2. Klausner, E. *Treatment of Syphilis with Kontraluesin: a Finely Divided Mercury.*
3. *Schlayer. *Sources of Permanent Increase of Blood-Pressure.*
4. Haymann, L. *Pathology and Course of Cerebral Abscess Starting from the Ear.*
5. Kienböck, R. *The Sigma Elongatum Mobile (Roentgen-findings.)*
6. Josefson, A. *Experiments on the Transmissibility of Acute Poliomyelitis by Inanimate Things and by Flies.*
7. Hoehl, H. *Effect of Neosalvarsan in Keratitic Parenchymatosa.*
8. Joschke, R. T. *Use of Narkophin in Midwifery.*
9. Pürckhauer, R. *Injury to the Crucial Ligament of the Knee.*
10. Flath. *Subcutaneous Rupture of the Liver.*
11. Grosser, P., and Schaub, G. *Pathology of Banti's Disease.*
12. Harmsen. *Bicycle-riding Using a Stiff Knee Joint.*
13. Herzog. *Shortening of Bone-conduction with Normal Hearing. (Concluded.)*

1. The writers describe good results following the use, intravenously, of "Aurum-Kolium Cyanatum," a new preparation. Having proved by animal experiment that the toxicity of the drug is relatively low, they treated 21 cases of lupus and 7 of syphilis. Most of the cases of lupus showed striking improvement. The effect in syphilis was much like that of mercury, except that in the tertiary stage it acted nearly as rapidly as salvarsan.

3. Schlayer reviews present knowledge of permanent hypertension, emphasizes the fact that autopsy shows a very high percentage of damaged kidneys in these cases, and brings forward evidence indicating an increased irritability of the blood vessels in chronic nephritis. [G. C. S.]

No. 3. JANUARY 21, 1913.

1. *STÄUBLI, C. *Asthma and Its Treatment.*
2. DEYCKE AND MUCH. *Tuberculin and Immunity to Tuberculosis.* (*To be concluded.*)
3. *GEISSLER, W. *Blood in the Spinal Fluid.*
4. SCHUMACKER, E. *A Group of Six Classical Cases of Botulism, etc.*
5. SIMMONDS, M. *Hypophysis and Diabetes Insipidus.*
6. BUTZENGEIGER. *Mesbé in the Treatment of Surgical Tuberculosis.*
7. *SCHÜFFNER, W., AND VERVOORT, H. *Oleum Chenopodii for Anchylostomiasis and a New Method of Testing Anthelminthics.*
8. HILDEBRAND, B. *Treatment for Oxyuris Vermicularis.*
9. BAER, G. *The Percussion Quantimeter.*
10. BÜTTNER-WOBST. *v. Pirquet's Cutaneous Reaction in the Prophylaxis of Phthisis.*
11. RICHARD AND FELTEN-STOLTZENBERG, F. *Negative Pressure in the Long Bones of Dogs.*
12. v. WERTHERN, F. *Suture of the Bladder after High Incision for Stone in Children.*
13. BOSSI. *Psychiatry and Gynecology.*
14. HAYMANN, L. *Pathology and Course of Cerebral Abscess Originating in the Ear.* (*Concluded.*)

1. Stäubli discusses the principal theories of the changes which occur in the lungs in attacks of bronchial asthma, emphasizes the fact that complete relief is often experienced at high altitudes and in deserts, even when the disease has resisted all other treatment, and describes a new inhaler which he has found most useful. The inhaler can be used for adrenalin alone or mixed with atropine and cocain, when the attacks are severe enough to require the latter drugs. The principle of the inhaler is to provide adrenalin in a finer spray than can be obtained from other inhalers. Thus, relief can be secured more quickly and with a much smaller quantity of the drug. No ill effects from very frequent use of this form of treatment have been observed. (The danger of arterioscleroses, which is said to have followed the free use of adrenalin in some cases, is not mentioned by the writer. Perhaps this danger does not exist when the drug is used in the small amounts prescribed by the writer. The beneficial effects described are striking.)

3. The writer groups the findings in spinal fluid with reference to fibrin, blood and cells, and attempts to draw conclusions of diagnostic value from them.

7. The results of the writers are based on careful observation of a large material. They find oleum chenopodii the best, thymol next, naphthol third, and Ol. eucalypti fourth in efficiency against anchylostoma. For ascaris thymol proved slightly better than Ol. chenopodii, whereas Ol. eucalypti and naphthol accomplished little. [G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 2. JANUARY 13, 1913.

1. NEISSER. *The Principles of the Modern Treatment of Syphilis.*
2. VON NOORDEN, C. *Intestinal Intoxication, with Especial Reference to Polyneuritis.*
3. WIECHERT, M. *Paralysis Following the Extension Treatment of Fracture of the Femur.*
4. SCHLESINGER, A. *The Surgical Treatment of Exophthalmic Goiter.*
5. *SOMMER, A. *Ehrmann's "Frog-eye" Phenomenon, Caused by the Blood Serum of Persons Suffering from Psoriasis.*
6. SCHIPPEN, J. C. *A Case of Acute Non-leukemic Lymph-adenoma.*
7. OFFERGOLD, H. *Synthetic Hydrastinin and Its Use.*
8. DUHRSSEN. *Synthetic Hydrastinin Hydrochloride.*
9. EHRMANN, R. *Diabetic Coma.* (*Concluded.*)
10. JEGER, E. *An Instrument for Aiding in the Blood Vessel Suturing of Carrel.*

5. The author has tried the effect of the blood serum of psoriasis on a frog's eye, in 21 cases with a constant result. The eyes of a pithed frog are enucleated, and placed in normal salt solution, following which the pupil becomes narrow. The eyes are then placed, one in normal blood serum, and the other in the serum of a psoriasis sufferer. At the end of five to ten minutes, the pupil of the eye in the normal serum dilates, but the pupil in the psoriasis serum always remains contracted. The author has used control sera from various other skin diseases, but gets no such reaction as he finds from the serum of psoriasis. He is now at work trying to find the chemical substance contained in the psoriasis serum, which will so affect the pupils of the frog's eye. He believes that when this substance is found, the etiological factor of psoriasis will be known. [J. B. S., JR.]

Correspondence.

ATHLETICS AND LIFE.

Cambridge, Mass., Feb. 20, 1913.

Mr. Editor: I enclose you a clipping from a recent number of the *American Practitioner* (quoted January 25 by the *Journal of the American Medical Association*) which makes explicit in a striking manner what every physiologist who has to do with athletics knows for almost a scientific certainty in a general but as yet, undemonstrated, way. It is only one more wave on the rising tide of protest; it runs as follows:

"College Athletics in After-Life.—In answer to the question 'Does the physical training of the college athlete better fit the business or professional man for his after-life?' Harlow Brooks, in a paper read before the New York Medico-Surgical Society, says that he has had frequent opportunity to test this question during a period of fifteen years. As medical officer of a regiment of the national guard composed largely of ex-college men, he has had opportunity to examine them and to oversee their military work anywhere from five to fifteen years after they have left college. During one year he examined in this organization twelve different men, all at one time famous as college football players, six of them captains of their teams. These men were subjected to the same work and the same physical tests as men who had passed through their college course without particular athletic distinction or who had never been in college. Of these twelve famous athletes only one could be rated physically up to the average of the men of his own age. This one subsequently died in the early thirties of diabetes mellitus. Brooks says that similar conditions obtain with regard to men who were active in other college sports, and that the defects become even more marked in trackmen and in oarsmen particularly, but appear in the least degree in baseball players. He says that the experience of other physicians connected with athletic clubs is similar to his and that the distinguished college athlete after ten years of severe business life is below the average man physically, and also in the measure of his resistance against disease. He may even fall below the level of the entirely non-athletic man. The defects, as Brooks has observed them, are confined chiefly to lesions or disturbances of the heart and other circulatory organs, to adiposity or to joint-disease. Brooks attributes this largely to the fact that these athletes, when they engage in business, must largely give up their athletic exercises, and it is the law of physiology that a useless tissue deteriorates rapidly. The physical descent of the crack college athlete, Brooks believes, is much more rapid than that of the purely

untrained man who has exercised during his youth for pleasure or for benefit alone and who has had no records to maintain."

College alumni should be made to know and effectively realize these facts, for it is they who support, directly and indirectly, the college games demanding an admission-fee. This matter of latent incapacity and possible early death of course is only one phase of the matter, but it is a phase, a relatively new one, which will appeal, when it is known, deeply and forevermore.

No specialist in the psychophysiology of physical education was ever more certain than myself of the *necessity* of abundant outdoor physical exercise taken systematically throughout life. My physiologic objection here is wholly to the *over*-training brought to most of our varsity players through the ambition (how foreign to scholarly pursuits!) to meet the popularity made possible only by the great public games. In this system the majority of the students get only what they most need to avoid, namely exciting nervous strain of one kind and another, while the almost gladiatorial minority gets *over-training*, and perhaps is strained for life.

The 1912 report of Surgeon-General Stokes of the United States Navy should be read by all who are still inclined to doubt the validity of this general opinion.

Did not nine-tenths of varsity players very soon drop into the *sedentary* mode of life after graduation, of course this very high, over-high, plane of metabolic efficiency would do relatively little harm. As it is, the over-training in most cases leads to dangerous degenerations of the most essential organs, whether with or without fatal effect.

Every college with the long-life interests of its students and their economic efficiency truly at heart will teach the over-enthusiastic minority how to protect their bodies as surely as it will compel the more or less indolent majority to train and develop their organisms—and both to the same end: good health, long life, and happiness.

Truly yours,
GEORGE V. N. DEARBORN, M.D.

Miscellany.

NOTICES.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON. UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., on Monday, April 7, 1913, at 10 o'clock a. m., f r the purpose of examining candidates for admissdon to the grade of assistant surgeon in the Public Health Service.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

The following is the usual order of the examinations: (1) physical; (2) oral; (3) written: (4) clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which should disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2400, surgeons $3000, senior surgeons $3500, and assistant surgeon generals $4000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

Fur further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 1, 1913.

MAHONEY, J. A., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Asiatic Station.

MARTIN, LEON, acting assistant dental surgeon. Ordered to Navy Yard, Philadelphia, Pa.

JOHNSON, L. W., passed assistant surgeon. Detached from Navy Rectg. Sta., Baltimore, Md., and ordered to Naval Hospital, Washington, D. C.

POLLARD, J. B., passed assistant surgeon. Detached from Navy Rectg. Sta., Dallas, Texas, and ordered to Navy Recruiting Station, Atlanta, Ga.

CHARLTON, C. F., assistant surgeon. Detached from Navy Rect. Sta., Hartford, Ct., and ordered to Naval Hospital, New York, N. Y.

TOWNSEND, W. G., acting assistant surgeon. Detached from Marine Rectg. Sta., Baltimore, Md., and ordered to Navy Rectg. Sta., Baltimore, Md.

PAYNE, J. H., acting assistant surgeon. Detached from Navy Rectg. Sta., Atlanta, Ga., and ordered to Navy Rectg. Sta., Hartford, Conn.

LITTELL, J. C., acting assistant surgeon. Detached from Marine Rectg. Sta., Cleveland, O., and ordered to Navy Rectg. Sta., Salt Lake City, Utah.

WHITTEMORE, G. B., passed assistant surgeon. Detached from Navy Rectg. Sta., Salt Lake City, Utah, and ordered to The Receiving Ship at Puget Sound, Washington.

HALE, G. D., passed assistant surgeon. Detached from The Receiving Ship at Puget Sound, Washington, and ordered to the U. S. S. *Yorktown*.

SOCIETY NOTICES.

BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 18, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

"Experimental Nephritis and Renal Function." Studies from the Laboratory of the Department of Theory and Practice of Physic, Harvard University, and the Medical Service of the Peter Bent Brigham Hospital, by Drs. Henry A. Christian, Channing Frothingham, Jr., James P. O'Hare, I. Chandler Walker, Reginald Fitz, R. P. Dawson, W. G. Smillie.

I. Introduction (5 minutes).
II. Glomerular Lesions of Experimental Acute Nephritis. (With lantern slides.) (10 minutes.)
III. The Effect of Diuretics in Experimental Acute Nephritis. (With lantern slides.) (15 minutes.)
IV. Some Studies of Renal Function in Relation to Nitrogen Retention. (With the coöperation of Professor Folin.) (15 minutes.)
V. Variations in Nitrogen Ionization of the Urine in Relation to Dieting and Exercise. (10 minutes.)
VI. Experimental Chronic Nephritis Produced by a Chemical and Bacteria. (With lantern slides.) (15 minutes.)
VII. Certain Psychic Disturbances of the Composition of the Urine. (10 minutes.)
VIII. Effect on the Kidney of Temporary Clamping of the Renal Vessels. (The functional studies were made in association with Dr. Rowntree at Johns Hopkins University.) (15 minutes.)

CLEAVELAND FLOYD, M.D., *Secretary.*

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The fourth regular meeting of the Essex South District Medical Society will be held Thursday, March 13, 7 p. m., in Lynn, at the Hotel Seymour, corner of Exchange and Broad Streets. Dr. Franklin S. Newell, of Boston, will talk on "The Indications for Cesarean Operation." Dr. Mark Richardson, Secretary of the State Board of Health, will also be a guest, and will talk on "The Care and Control of Typhoid."

H. E. SEARS, M.D., *President.*
H. P. BENNETT, M.D., *Secretary.*

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society, March 20, at 7.30, in the Kensington Building, Room 203. Papers: "The Study of the Causes of Juvenile Delinquency," Dr. Edith Spaulding. "What the State of Massachusetts is Doing for Delinquent Girls," Miss Edith Burleigh, superintendent of the Parole Dept. of the State Industrial School.

MARGARET L. NOYES, *Secretary.*

RECENT DEATHS.

DR. KINGMAN B. PAGE, a well-known surgeon, died in New York on February 19, at the age of 49 years. He was graduated from Bellevue Hospital Medical College in 1887, and at the time of his death was genito-urinary surgeon to St. Mark's and the People's Hospitals.

DR. JOHN B. L'HOMMEDIEU, Senior Deputy Health Officer of the Port of New York, died suddenly from cardiac disease on February 21. He was graduated from the medical department of New York University in 1890, and had been connected with the Quarantine service since 1895.

DR. WILLIAM J. CALLAN, of Brooklyn, N. Y., died on February 13, at the age of 47. He was graduated from the Long Island College Hospital in 1892 and was for a time in the service of the Health Department.

DR. GEORGE H. WITTER, of Wellsville, Alleghany County, N. Y., died on February 13, at the age of 54 years. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1885 and served from 1908 to 1910 as State Senator.

DR. J. FREDERICK BABCOCK, who died recently at Bangor, Me., was born in that city in 1845. He practised dentistry there for many years, and was the inventor of several dental appliances. He was not married.

DR. NORMAN B. BAYLEY, of Haverstraw, N. Y., a graduate of the medical department of Yale University in 1871, died on February 20, at the age of 66 years.

DR. FRANCIS HENRY COHAN, a Fellow of The Massachusetts Medical Society, died at Leominster, Mass., on Feb. 13, aged 42 years.

DR. GEORGE FISHER, of Paterson, N. J., a graduate of Würzburg in 1889, died from pneumonia on February 22, at the age of 47 years.

DR. PHILIP HANSON HISS, JR., professor of bacteriology in Columbia University, New York, and an authority on medical research work, died on February 27. He was born in Baltimore, September 17, 1..38, was graduated as A.B. from Johns Hopkins University in 1891 and as M.D. from Columbia in 1895, was Alumni Association Fellow to 1896 and Clark Scholar to 1900, and was appointed assistant in bacteriology at Columbia in 1903. Later he was made instructor in bacteriology, and in 1906 full professor. From 1896 to 1899 he was associated with Dr. W. H. Park in the research laboratories of the Department of Health, where he applied his methods of isolating the typhoid bacillus on his special media, and also carried on important investigations regarding immunity. He is survived by his widow and two children.

RESIGNATION.

Report from Albany, N. Y., states that on Feb. 27, Dr. John W. Russell resigned as superintendent of the Matteawan State Hospital for the Criminal Insane, and his resignation was accepted.

BOOKS AND PAMPHLETS RECEIVED.

Medical Ispection of Schools, by Robert W. Hastings, M.D., A.M. Reprint.

The Mulford Digest. January, 1913, vol. 1, No. 3. H. K. Mulford Company, Philadelphia.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 1, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	19	3
Chicago	847	245	Waltham	11	1
Philadelphia	—	—	Brookline	8	0
St. Louis	—	—	Chicopee	10	5
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	5	1
Buffalo	—	—	North Adams	7	1
Pittsburgh	—	—	Northampton	6	1
Cincinnati	—	—	Beverly	4	2
Milwaukee	—	—	Revere	1	—
Washington	—	—	Leominster	4	—
Providence	—	—	Attleboro	7	2
Boston	294	71	Westfield	6	—
Worcester	54	14	Peabody	—	—
Fall River	37	11	Melrose	4	—
Lowell	38	13	Woburn	4	—
Cambridge	—	—	Newburyport	7	1
New Bedford	35	16	Gardner	5	2
Lynn	27	8	Marlboro	9	—
Springfield	35	6	Clinton	4	1
Lawrence	—	—	Milford	—	—
Somerville	34	3	Adams	9	1
Holyoke	25	10	Framingham	—	—
Brockton	15	5	Weymouth	—	—
Malden	12	5	Watertown	3	2
Haverhill	6	—	Southbridge	4	—
Salem	17	7	Plymouth	—	—
Newton	12	5	Webster	3	1
Fitchburg	14	3	Methuen	—	—
Taunton	22	4	Wakefield	3	—
Everett	12	5	Arlington	4	—
Quincy	—	—	Greenfield	5	3
Chelsea	13	—	Winthrop	6	—

JOHNS HOPKINS HOSPITAL
MAR 22 1913
Library

Addresses.

MEMORIALS TO ARTHUR TRACY CABOT, M.D.*

I.

BY HENRY P. WALCOTT, M.D., CAMBRIDGE, MASS.

ARTHUR TRACY CABOT was born in Boston in the year 1852, the third son of Dr. Samuel Cabot, a well known physician of this city and a visiting surgeon of the Massachusetts General Hospital. His mother was Hannah Jackson, daughter of Judge Charles Jackson, and a member of a family distinguished in every walk of life that has led to success and the esteem of their fellows in this community.

He was graduated at Harvard College in 1872; entered at once upon the study of medicine and took the degree of M.D. in 1876, having served during the last year of his studies as surgical interne at the Massachusetts General Hospital.

He spent a year in graduate studies abroad, at Vienna, Berlin and London.

He entered upon the practice of medicine in Boston in 1877 and spent here the rest of his life.

He was a lecturer and teacher at the Medical School upon several subjects in surgery until the year 1896 when he was elected a member of the board of President and Fellows of Harvard College, and a teacher of the best quality was lost to the Medical School.

He was for several years surgeon at the Carney Hospital, assistant surgeon and visiting surgeon at the Children's Hospital from 1879-1889; surgeon to out-patients at the Massachusetts General Hospital, 1881-1886; visiting surgeon 1886-1907.

Beginning professional life as a general practitioner of medicine, he early followed the bent of his inclinations and limited himself more and more to the practice of surgery.

His achievements in this field will be adequately presented by another speaker on this occasion.

The honors bestowed upon him, not only by his associates in his own department in surgery, but by the whole body of the medical profession, give evidence of the esteem in which he was held. He was a member of the American Surgical Association, the American Association of Genitourinary Surgeons, and of several foreign Societies of specialists in his chosen line of work.

He was Honorary President of the American School Hygiene Associations, and President of the Massachusetts Medical Society in the years 1905 and 1906, and a fellow of the American Academy of Arts and Sciences.

During his active professional life he enjoyed a reputation second to none in all the qualities that go to the making of a great surgeon. My own intimate acquaintance with Dr. Cabot goes back to the year 1891, when I became a trustee of the Massachusetts General Hospital. The two junior visiting surgeons of that day were Arthur Cabot and Maurice Richardson, and never in any year of its glorious history was that institution more ably served than by these two men—appointed upon the same day. Intimate friends, they lived side by side, one rendering to the other any needed service; unlike in many respects, but alike in all the high qualities that make up the good physician.

They reached the goal of life together—the one in all his magnificent strength and apparent capacity for continued service, even with his characteristic and most generous disregard of himself; the other, mortally hurt, lingered through days of disabling weakness, and maintained to the end the simple dignity and courage which we all had rightly attributed to him.

Dr. Cabot had early in his connection with the hospital attracted the favorable notice of Henry J. Bigelow and had been unhesitatingly assisted by that great master to the performing of important operations not ordinarily transferred to a junior in service. The pupil justified the confidence placed in him and became the legitimate successor of Dr. Bigelow in the special field which Cabot had made his own.

I cannot attempt in this presence to make any statements as to Dr. Cabot's real place as a surgeon. I believe, however, that no man in the long list of names honored in that hospital gave to it a more unselfish or productive service than did he.

He had from the beginning the confidence of the trustees. He did not volunteer his opinions, but he did not avoid the responsibility of expressing them upon proper occasions, and they had always a foundation in conclusions fairly reached by clear thinking. He did not allow himself to be led astray by personal prejudice, and was so careful in allowing for a possible bias that I do not remember an instance when he failed to do justice, whatever his personal relations may have been to the individual concerned.

If he thought the occasion required an expression of opinion upon the administration of the Hospital, he was frank and outspoken in his remarks, which, however, were more likely to be intended for the benefit of an associate than for himself. It seemed to me that no man there had a more precise knowledge of the nature of his work and that with him no emergency could arise which would find him unprepared and disarrange his well-formed plans. His capacity for clear thinking had the assistance of a cool head and steady hand.

It was always evident, however, that he did not find it easy to bring his naturally quick temper into subjection, yet he only relinquished his control of it in the presence of what seemed to him a cowardly or unworthy act.

The story of the life of a great surgeon would

* Read at a meeting of The Boston Society for Medical Improvement, Jan. 27, 1913.

ordinarily end here; not so with Dr. Cabot. He had beyond most of the members of our profession tastes which provided congenial occupations for his retirement from the activities of a lifetime, and he had acquired interests in the great questions of the public measures for the prevention of disease which are only now receiving the attention they deserve.

He had a great and well cultivated interest in the fine arts. He was a trustee of the Boston Museum of Fine Arts and took an active share in the affairs of that institution. He was the sole member of a committee of the Corporation of Harvard College in general charge of the Fogg Art Museum at Cambridge, and his associates on that board were always content to accept his judgment upon all matters relating to that department.

As usual with him, his conclusions were never the result of some momentary appeal to the sense of sight, but were carefully built up from principles of taste which have lived through all the vicissitudes of time and fashion.

During the years 1905-6 he was President of the Massachusetts Medical Society, and in the exercise of one of the functions of that office visited in turn the various district societies of the state. The text he took for his addresses on these occasions was that of the duty of our profession to instruct the public upon the measures that can be taken for the control of tuberculosis. He saw clearly that the influence of the medical profession would be absolutely essential to a correct decision upon the value of the measures which an ill-informed but well-meaning and enthusiastic public sentiment might induce the authorities to adopt. He procured the formation of local associations of physicians for consultation and appropriate action. General meetings were held at the time of the annual meetings of the State Medical Society and the sympathetic interest of the profession was secured.

A not unfriendly critic remarked that this interest on Dr. Cabot's part in the preventive side of medicine was not the usual attitude of mind of the surgeon. I must confess that to me at any rate it seems the logical condition of mind for the modern surgeon.

Dr. Cabot entered upon the practice of his profession fresh from listening to Lister's application of the discoveries of Pasteur. Is there any preventive measure in the whole realm embraced within our art greater or more beneficent than the improvement in the treatment of wounds brought about by the labors of this greatest benefactor of our day?

Dr. Cabot's successful efforts in rousing the interest of the community in measures for the prevention of tuberculosis led to his appointment by Governor Guild as a member of the board of trustees of the Hospitals for Consumptives.

When the board came together for organization he was elected chairman and served in this capacity to the end. Upon no work of his life did he spend more time or energy than upon this. No detail in the selection of proper sites, in the construction of the necessary buildings, or in the administration of the hospital was too minute to escape his attention nor did it fail to receive sufficient care.

The result has been that the treatment of this disease by State agencies has brought to Massachusetts a well earned distinction from all those whose opinions are of much value. Dr. Cabot had probably never appeared before a committee of the Legislature until his service upon this board made his appearance there essential. No man could have made a better impression, quiet, dignified, self-contained, fully informed upon his subject, frankly meeting every criticism, whatever its nature might be, disarming even the noisy demagogue by some plain statement of fact. If he did not obtain everything he wished for the cause he represented he always gained the respect and good will of the body he addressed, and did receive more consideration than ordinarily falls to the lot of those who seek new legislation. The history of State control in connection with tuberculosis would be incomplete if it omitted due notice of Dr. Cabot's intelligent, persistent and generous activities in this cause.

A closely allied subject of public interest for Dr. Cabot was the hygiene of school life. He recognized the fact that the public when it made school attendance compulsory assumed the duty of caring for the tuberculous children who were inevitably to be found in the school population and not yet physically so disabled as to be unfit for school attendance. Hence his interest in the work of the School Hygiene Association.

A congress of those interested in this subject was held at Nuremberg in 1904. It was attended by about 1500 delegates representing nearly all the civilized countries and its influence was early felt in the literature, laws and regulations of many lands concerning health and education. Dr. Cabot was an associate in the second congress of School Hygiene, which was held in London in 1907. Sir Lauder Brunton presided and had, previous to the meeting, written to Dr. Cabot seeking his influence to secure delegates from the United States.

The assembly in London had a success so marked that plans were formed for the purpose of bringing the fourth congress to this country. Accordingly it was decided at the third congress, held in Paris in 1910, to meet in this country in the year 1913.

The city of Buffalo volunteered to serve as the host for the meeting, and measures are now taking to bring this congress together in August of the present year. Dr. Cabot was made chairman of the executive committee of arrangements and some of his latest efforts were bestowed upon this troublesome piece of business. The labor was willingly undertaken by him, for

he had been largely instrumental in obtaining the consent of his friend, Charles W. Eliot, to serve as president of the congress. As the result of Dr. Cabot's correspondence and subsequent interview with Dr. Brunton, it was agreed that there was need of an organization in this country which should be devoted to the promotion of the interests of school hygiene.

Steps were at once taken for the formation of an American School Hygiene Association. The organization was effected at Washington in 1908, with the declared purpose "of bringing into effective service the large amount of practical knowledge concerning school hygiene that has been developed by scientific means during the last few years; of fostering the increase of knowledge upon this topic; and of bringing into helpful relations the scientific investigators and the men occupying administrative positions with reference to education."

He was the leader in the movement, but with characteristic modesty procured the election of an absent friend to the presidency of the Association. He supported his creation most liberally by money and better still by his clear head and unselfish heart.

It would be a work of supererogation here to dwell upon the vital importance of bringing all our knowledge of sanitary questions to bear upon the school life of our children.

While the great leader in the whole movement for reforms and improvements in our educational methods is speaking from his place at Buffalo, we shall inevitably think of the silent friend who labored so earnestly, and, I believe, most profitably for the accomplishment of the same high ends.

There was published in the *Atlantic Magazine*, bearing date of November, 1912, an article which bore the title "Tuberculosis and the School," by A. T. Cabot. It was his final declaration of his belief in the reality of the measures which he had urged most strenuously and which without doubt will prevail.

In 1896 he was chosen a Fellow of Harvard College and became a member of the Corporation. There was already a member of the medical profession upon that board and, important as it was at that time of development in the Medical School to have the aid of Dr. Cabot's interest in scientific medicine, I feel sure that he owed his election fully as much to the qualities of the man as to his rank among surgeons.

He possessed all the good qualities required in this place of many responsibilities. A man of science and cultivated taste, of clear head and honest mind, bold when occasion required it, *firm but not* obstinate, he always showed a due consideration for the opinions of his associates and was devoted at all times to the interests of the University. The minute placed upon the records of the Corporation shows the regard which his associates had for him.

"Arthur Tracy Cabot, a member of the Corporation since 1896, died at Boston on November 4, 1912. He had reached the highest rank in his profession when elected to this body. He had obtained this success by abundant knowledge, by clear thinking, by great industry, and by absolute control of all his faculties in the presence of great perils.

"At this board he showed the same capacity for seeing plainly through any disturbing circumstances, the end to be attained.

"Accurate, firm, courteous and devoted to all the interests of the University, he gave to the questions of its administration the same unselfish care which made him, even to the last, a great leader in the public work of protecting human life."

His slight figure and somewhat grave and thoughtful expression of countenance were imperfect signs of the physical ability and character of the man. He made a strenuous use of his active and well-knit frame; and when he revealed himself to his intimates—how many of us will ever forget the charm of our association with him!

Though a bold rider on the polo field and skilled in many out-door games, he took but little interest in the public spectacles of the stadium and found slight attraction to the athletic exercises which require a professional training or exceptional strength; his concern was more with the well-ordered use of the average body.

When he realized that the end had come of his own participation in the out-door life of the game club, which had given to him some of the most enjoyable diversions of his life, he sold his shares in the property and turned over the proceeds to a body of trustees for the town of Canton for the purchase and maintenance of playgrounds there.

He had an intense love of out-door life and found his highest enjoyment in its simple and primitive form, that of the hunter and fisherman, but here he never yielded to the ignoble desire to capture or destroy animal life beyond just measure. He believed in vivisection, for he knew how much it had done to protect human life, and that experiment must of necessity be made upon the human patient if the use of an animal could not be had.

He viewed with aversion all forms of cruelty to animals wherever unnecessarily practiced, but had little patience with the sentimentalism which seeks to abolish the biological laboratories. His own familiarity with them had taught him that cruelty in the majority of instances defeats the proper objects of the experiment, and here, at least, is forbidden.

Cherry Hill in Canton had been the summer residence of his father, and the old tavern on the highway, turned to a private use, had been with its ample fields, the scene of his own youthful country life. In his later years Dr. Arthur Cabot had built an attractive house for himself upon a portion of the property withdrawn from the ever-increasing noise and dust of the high-

way. All of the surroundings contributed to make the place most grateful to one of his tastes. When you looked from its western porch across the pleasant garden in front, and through the over-arching trees at the quiet landscape, beyond where there was nothing to suggest the great city only a few miles away, you felt that here at last might be spent the evening to a busy and toilsome life in occupations still helpful to his fellows and full of enjoyment for himself. It was not to be.

Hoping against hope, he resigned himself to the skilful hand of the friend of a lifetime, whom unseen fate was even then leading to the other world which both were so soon to enter.

In the disposal of his property he kept in mind the interests to which his life had been devoted; he made provision for a fund of $100,000 to be placed at the disposal of the President and Fellows of Harvard College, the income of one-half of this sum to be used for the purchase of books upon the fine arts and allied subjects, for the College Library and the Fogg Art Museum, the income of the other half to be used for the general purposes of the Medical School. He also remembered the interests of the Massachusetts General Hospital, which he had so steadily promoted through life, and gave for the support of the hospital laboratories the sum of $20,000.

Dr. F. C. Shattuck and his wife on August 9, 1912, gave to Harvard College the sum of $25,000 for the establishment of the Arthur Tracy Cabot Fellowship in Surgery, in testimony of affection for the man, grateful admiration of him as a surgeon, and appreciation of his services to medicine.

This gift to the College from his much valued friends was a source of great satisfaction to Dr. Cabot. It came at the time when he knew that his own work was done, and he saw in it a happy and permanent memorial of his own activities in this department of medicine.

II.

BY PAUL THORNDIKE, M.D., BOSTON.

ARTHUR TRACY CABOT was a man of such activity of mind and such catholicity of interest and sympathy that even a brief chronicle of his efforts and accomplishments is for no one person to attempt, and it is of Arthur Cabot the Surgeon that we would speak.

Born in 1852, the third son of Dr. Samuel and Hannah (Jackson) Cabot, he passed his boyhood in Boston, his undergraduate life in Cambridge with the class of 1872, and studied medicine at the Harvard Medical School, from which he graduated at the head of his class to serve as surgical interne at the Massachusetts General Hospital. From there he went abroad and remained away from August, 1876, to October, 1877, studying chiefly in Vienna and Berlin, but nowhere, as he says, "seeing anything adequate in the way of antiseptic treatment." He continues: "I passed one month in London, visiting King's College Hospital, to which Lister had just been appointed, and I listened there to his inaugural address when installed. I got there a better idea of antiseptic dressings as Lister understood them."

On his return to Boston in 1877, he began the practice of his profession, and from the first his surgery was clean surgery, at first antiseptic in technic and later aseptic, and always was he found the leader in the band of men who were gradually making modern surgery what it is today. So, although the earlier years of his professional life were occupied with general practice, it is evident that he was at heart a surgeon from the first and he became ere long an eminent one, gradually withdrawing from all but surgical practice.

Shortly after he began to practice he was appointed surgeon to the Out-Patient Department at the Massachusetts General Hospital and he became a full visiting surgeon in 1886. Here he remained, doing brilliant work, for twenty-one years, resigning in the spring of 1907, to be at once placed upon the Hospital's board of consulting surgeons.

He was surgeon to the Carney Hospital for a number of years and was on the surgical staff of the Children's Hospital for the ten years from 1879 to 1889. At the death of Dr. Thomas B. Curtis, in 1881, who had identified himself with the teaching and practice of genito-urinary surgery in Boston, Dr. Cabot avowedly allied himself with this work, although he never ceased to consider himself a surgeon and to practice general surgery. In the field of genito-urinary surgery he attained great distinction and universal recognition, and he practically succeeded Dr. Henry J. Bigelow as the leading advocate and exponent of litholapaxy, an operation which Dr. Cabot utilized and championed always, even after the suprapubic operation for stone was disputing the supremacy of the older procedure.

In 1886 he was the Boston representative of a little band of surgeons who gathered in New York to form the nucleus of what is now the American Association of genito-urinary Surgeons, and he was one of its first presidents. Some of the others associated with him in the organization of this society were Sir William H. Hingston of Montreal, Drs. Edward L. Keyes and Fessenden N. Otis of New York, Drs. S. W. Gross and J. William White of Philadelphia, Dr. Roswell Park of Buffalo, Drs. Moses Gunn and Nicholas Senn of Chicago, Dr. John P. Bryson of St. Louis, and Dr. George Chismore of San Francisco. He always had the interests of this society very near his heart, and his important contributions to its work, his constant loyalty to all its interests and his attractive personality made him perhaps it most influential and sought after member over a period of years.

In 1905 he became president of the Massachusetts Medical Society, holding office for two years and he did such distinguished work in the fight against tuberculosis that he was appointed in the following year (1907) one of a commission to locate and build three hospitals for tuberculous patients in Massachusetts. Soon after he was elected chairman of this board.

An appreciation of Dr. Cabot, published in a recent number of the BOSTON MEDICAL AND SURGICAL JOURNAL, speaks as follows of the character of his work for this great cause: "Only those on the inside fully know how much of the conspicuous success of this new departure was due to the compelling wisdom and unremitting labor of Dr. Cabot. In this, as in all his other work, its quality was only matched by his modesty. . . So deeply did he become interested in this line of work that in the spring of 1910 he retired from all practice and its emoluments that he might husband his strength for public work alone." Today there are few citizens of the Commonwealth of Massachusetts who do not recognize and thankfully acknowledge the value of that work.

Dr. Samuel Cabot performed in 1874 and 1875 the two first successful laparotomies at the Massachusetts General Hospital, although the operations performed upon Hospital patients were conducted in a neighboring house on Allen Street. Dr. Arthur Cabot assisted his father in these operations. He, himself, did the first successful abdominal operation within the Hospital walls in 1884, upon a long strangulated umbilical hernia. A description of the circumstances and difficulties attending the performance of this operation, as described in the recent appreciation in the BOSTON MEDICAL AND SURGICAL JOURNAL, gives the younger surgeons of today an insight upon the surgery of a quarter of a century ago.

In the spring of 1876 he succeeded in getting a thoroughly aseptic result in a compound fracture of the lower leg which he dressed with cotton batting wrung out in a strong carbolic solution and then dried.

About 1886, he, with his brother Samuel, a Boston chemist, established a fund at the Massachusetts General Hospital to pay a pathologist, who should be present on each operating day to make such examinations as the surgeon required. This was probably the first effort to make a pathological study and a surgical operation go hand in hand. The fund so started was soon raised to $10,000 by Dr. Cabot and his brother, and is now the Samuel Cabot Fund for Pathological Research. It was largely through Dr. Cabot's efforts that a clinical laboratory in pathology and chemistry was added to the equipment at the Massachusetts General Hospital.

Dr. Arthur Cabot was a prolific writer upon surgical topics and one of the chief values of his writing was due to his ability in making clear the pathological importance of the clinical facts with which he was dealing. Had he chosen to devote his energies to pathological science he would have gone far and accomplished much.

Of his contributions to medical literature it may be proper to mention a few that he himself regarded as interesting and, so far as his modesty permitted him, important. In 1880 and 1883 he made a full report of a series of cases of empyema which he treated after operation with a water-proof dressing, so obtaining a very perfect valvular action, which greatly aided the expansion of the lung during convalescence. During 1884 and 1885 he began the use of posterior wire splints in the treatment of fractures of the lower leg, and from that time the old fracture box, which had been the surgeon's main dependence in the treatment of such cases, was doomed to oblivion. In genito-urinary surgery, as has been said, he was a leader and his influence was widely felt for many years. He was a constant champion of litholapaxy. His publications on "Rupture of the Bladder" in 1891, and on "Rupture of the Urethra" in 1896, were milestones on the road of surgical progress. In 1893, when Dr. J. William White of Philadelphia so warmly advocated castration for the relief of obstruction due to hypertrophy of the prostate, the surgical world was stirred to its depths with excited hope and anticipation of a great new panacea for these cases at that time so often desperate and impossible of palliation. Dr. Cabot was appointed by the American Association of genito-urinary surgeons as one of a commission to collect evidence concerning this procedure, sift it and report to the society a year later. His tireless industry, his wise judgment in digesting the material after its collection, and his clear, just and convincing summary of the conclusions reached was as absolutely characteristic of the mental qualities which made him what he was as any work he ever did. He was also one of the earlier advocates of the more modern operation of prostatectomy, although his publications on this subject came a few years later, after his experience with it had matured.

In the history of surgery his name will long be remembered and his work has made for him an enduring place. His was a versatile and many sided nature. Of its interests and enthusiasms many lie outside of the intended scope of this brief consideration of him. His appreciation of all things beautiful in nature and in art, his love for animals, his joy in wholesome sport, and his sincere affection for his many friends, an affection that he was better and better able to express as the years with their mellowing passed by—all these it would be pleasant to consider but here we must leave him as he was—Arthur Tracy Cabot—eminent surgeon, with brain and hand always ready to do the best work known to his art; wise counsellor, with judgment always keen and never impetuous; faithful friend, ever ready with affection, sym-

pathy and understanding; true-hearted gentleman in every thought and every act. Many men respected his ability; many men loved his personality; many men will find it hard to bear his loss.

III.

BY JOHN B. HAWES, 2ND., M.D., BOSTON.

My intimate acquaintance with Dr. Cabot began in the fall of 1907, when he asked me to act as secretary of the recently appointed Board of Trustees of Hospitals for Consumptives. At the first meeting of the Board Dr. Cabot was elected chairman and immediately took active charge of our work in selecting sites and making plans for the three sanatoria we were asked to build. Although many of my friends had told me that my position as secretary under Dr. Cabot would be no sinecure, I soon found out that as long as I did my work promptly and well I need not worry. We naturally did not agree on all points; when the question was a medical one and one concerning which I thought my own opinion of some weight, if it did not happen to agree with his, I did not hesitate to say so. I must frankly confess, however, that during the early years that we worked together he was nearly always right and I usually wrong. He had a remarkable memory for details. Again and again he would refer me to some action taken at a preceding meeting, concerning which I had not the slightest recollection and would say so, only to find on looking it up that he was correct in every particular.

We spent many pleasant hours together looking over the country for sites for hospitals. One after another was examined and discarded, sometimes for reasons that did not at first appear clear to me. After the locations for the three new sanatoria were finally selected, the Board began work on plans, specifications and contracts. In this Dr. Cabot put great reliance on the opinions of two members of the Board, Alvah Crocker of Fitchburg and William C. Godfrey of Springfield. Each of these men was at the head of a large manufacturing plant and well acquainted with the details of construction. It was a constant source of wonder to me to note how often Dr. Cabot's opinion as to the most technical of details agreed with that of these gentlemen. Dr. Cabot took an intense personal interest in the building of each institution. He was chairman of the Board in fact as well as in name. He had himself placed on the building committee of each institution while in the process of construction and later on each visiting committee as well. From the very start he gave a great deal of his time to the work, although for the first few years he carried on an extensive surgical practice. He knew every detail of construction and management, and demanded the same knowledge of each superintendent. Nothing irritated him more during the early days of construction and later in the administration of the completed buildings than to talk with one of the superintendents and find him vague or forgetful in regard to the smallest details of his work. There was nothing superficial about his visits to the sanatoria; he did not say much but he took in everything; he never made any criticism in public, while nurses, attendants or patients were around, but always waited until later, when in the office or sitting-room he would quietly and judicially go over the situation and call attention to certain matters needing improvement.

It was his pride to keep the cost of the three hospitals within the appropriation granted for this purpose. Although this was a difficult task, he accomplished it by the most painstaking efforts in economy and watchfulness. At an early date he determined that the workings of the Board should be kept out of politics; up to that time it had seemed as if admission to certain State institutions had not always been on a basis of pure merit. Dr. Cabot found great obstacles at once thrown in his way when he made it the policy of the Board that patients be admitted to the four state sanatoria purely in order of their application. As secretary of the Board and the one who decides as to what institution patients shall be admitted and in what order, nothing gave me more satisfaction when talking to this or that senator or representative interested in some constituent, than to feel that Dr. Cabot and the Board were strongly back of me in ruling out all political influence as a factor in admission of patients. It was by no means an easy task to do this. So strong was the feeling at the State House that it was right to grant certain favors of this kind to members of the Legislature and to others in authority that at first many stormy interviews resulted. I did my best not to bother Dr. Cabot with such matters as these, but in those few instances in which I was forced to refer the case to him, he invariably supported me in every way and ended by saying, especially when he saw I was intensely irritated, "Hawes, don't let these things bother you; simply tell them you'll do the best you can." This simple formula I have since used many times, with excellent results.

One of Dr. Cabot's important duties was to represent the Board at hearings concerning our appropriations and other measures before legislative committees at the State House. He was not a ready or a fluent speaker; he was slightly deaf but did not like to be reminded of the fact, and the slightly built man, with the thoughtful and often gloomy countenance, the somewhat hesitating manner of speaking and a somewhat quick temper did not at first make a very marked or favorable impression on many members of our Great and General Court. On the other hand, they were apt to be deeply impressed by certain persons possessed of a grandiloquent style of oratory who regularly

appeared in opposition to most of the measures introduced by our Board. Gradually, however, Dr. Cabot's real worth made itself felt. Legislative committees, State boards, and others before whom he appeared came to realize that he was a big man; that he was giving invaluable services to the State; that his opinion was always based on facts, and that he never favored any project nor asked for any appropriation until he had made it a subject of painstaking and prolonged study and investigation and believed it to be necessary for the welfare of the State. He never said much about this change in point of view, but I am sure it was as gratifying to him as it was to me. Last winter, the last in which he appeared at the State House, I saw no one whose words were listened to with greater attention and respect than were those of Dr. Cabot.

His interest was not confined solely to the work of our Board. He was chairman, and I again secretary, of the Tuberculosis Committees of the Massachusetts Medical Society. This brought him in touch with many physicians all over the State and drew him into tuberculosis problems of all kinds. School inspection, outdoor schools and fresh air rooms deeply interested him; welfare work in factories was a project he was constantly working at. Much of the best health work of this kind in Massachusetts is directly due to his personal influence with boards of directors, presidents and other officials of large concerns.

He gave an increasing amount of time to the work of the Board up to his last illness. When he was not traveling over the country visiting the sanatoria, he was usually to be found at our office on Joy Street. He rarely used the elevator, but came up the stairs quickly and quietly; many times the first thing to make me aware of his presence in the office was his grave voice asking me about certain matters. These occasions were at first a great source of embarrassment. He sometimes stayed for hours not speaking, but apparently thinking things over in his mind. I did not know whether to sit and wait until he chose to speak or to keep on with my work. Gradually, however, I became more at ease, and at such times went on with what I had to do, writing or dictating, until he was ready to talk things over.

He was always a hard worker. Most of our annual reports he chose to write himself, in long hand, with much labor and effort, for he was afflicted with writer's cramp. After he had written anything it rarely needed correction, although up to the last he and I could never agree on the subject of "split infinitives," of which he was very fond and which I had been taught to abhor. My own method of writing, the reverse of his, which was to think a subject over in my mind and then to dictate it to my stenographer, as fast as she could take it down, I think irritated him a little. I constantly tried to make the work easier for him by relieving him of details which I could perfectly well attend to; this was a very difficult task, for when interested in any one piece of work no detail was too small to absorb his entire attention. The result was that the work was well done, but at considerable unnecessary cost to him. He despised all forms of "red tape"; he insisted that the machinery of our Board should be as simple as possible and that no useless formalities should stand in the way of attaining any worthy end.

I can imagine no greater monument to a man than such a one as has been erected to Dr. Cabot. In 1907, when he first took hold of the work there was much chaos and little or no order or system in the anti-tuberculosis forces of this State. There was great and urgent need of a firm guiding hand to direct and control all that was being done. Dr. Cabot gave the State such a guiding hand and master mind. Before his death he saw three great sanatoria added to the one already established; he saw local tuberculosis associations grow and multiply; he saw municipal hospitals for sick and dying consumptives increase, and the death-rate from tuberculosis diminish; he put school inspection on a proper basis by the introduction of school nurses; he was influential in establishing fresh air rooms and schools for children; he persuaded manufacturers that to keep their employees well was better economy than to let them get sick, and he made them see that a nurse and medical inspection for their employees was a necessity and not a luxury. He developed a united spirit against tuberculosis in the medical profession, and he more than any one man I know of in this State, has been responsible for the great strides made in eliminating this disease during the last six years. Neither he nor any of us will see the completion of the work that he began so wisely and so well. But I am very sure that it was a deep sense of joy to him to witness the advances that have been already made. To me, my experience as a young man thrown into most intimate contact with Dr. Cabot for these years has been one of the greatest privileges of my life. Now that he has gone, and much of what he was doing is thrown on my shoulders, I can only hope and strive to act as I think he would have acted were he still with us.

Robbery of a Centenarian.—Peter Morrison, of Albany, N. Y., who is locally reputed to have been born on March 11, 1813, went recently to San Francisco, Cal., to celebrate his supposed centennial anniversary with some relatives in that city. Unfortunately on March 7, it is reported, he fell among thieves, and the thieves sprang up and robbed him of $87, his entire worldly supply of cash. Men who would perpetrate such a deed on a defenceless centenarian, might be expected to rob the very dead.

Original Articles.

THE REGISTERED MIDWIFE: A NECESSITY.*

BY EDMOND F. CODY, NEW BEDFORD, MASS.

WE are agreed that the expectant mother should be safeguarded through her pregnancy by all that scientific medicine can guarantee; that her delivery and convalescence should be under the strictest surgical aseptic precautions, aided by skilled nursing; and at all times she should receive the fullest measure of sympathy. We further wish that this could be the lot of every parturient woman. This is the obstetric ideal. But we are to consider a condition, not a theory.

The women at the opposite social extremes receive these; those with the money to purchase can have all the necessities and refinements of obstetric science and the very poor, through the increase of charitable and philanthropic societies, co-operating with visiting nursing associations and other agencies of relief, including in Boston the work of advanced medical students, can receive equally efficient service.

So it is the middle group or stratum of our people we are to study in approaching the midwife problem, the foreign born who can pay a small fee for the service. For the midwife is not the accoucher of the pauper. She is not a philanthropist, but a wage earner.

Until the end of the 16th century, the midwife was almost absolute in the field of obstetrics and conditions akin to it. In 1588 Louise Bourgeois, midwife at the court of Henry XIV, published a collection of observations on sterility, fecundity, abortion, accouchement, and diseases of women and children generally. The Chamberlaines, midwives also, furnished the first rude instrument, which later modified by Palfyn of Ghent and re-modified by almost every professor of obstetrics since, has developed into our forceps of the present day.

It was Paul Portal of France who first proposed version by the foot, and to Justine Siegemund, daughter of a minister and Court midwife of Germany, belongs the distinction for the first published suggestion of bimanual version and for puncture of the membranes for induction of artificial labor.

With the extension of medical education and medical literature at the beginning of the 17th century, obstetrics began to occupy the attention of physicians and students, the midwife began to lose her place in the higher ranks of life and man midwives being fashionable in France, the influence extending gradually, forced her lower to the level of her services today. Her past had been honorable, and as shown by these examples, often of distinct contributive value.

Dr. S. Josephine Baker publishes a table from Prinzing and other sources which gives the number of midwives and their incomes in 9 of the principal European countries.

In England, registered in 1909, there were 27,238 midwives, or 7.3 to every 10,000 inhabitants, these averaging 38 births per year. Switzerland in 1903 had the largest proportion of midwives, 10.1. Average births, 29. Russia, with 14,000 midwives, or 9 to every 10,000, averaged 550 births each. Their incomes also vary considerably. The English midwife averages $1 to $4 per case; the Austrian, $2; annual income, $60 to $75; and the German $.50 to $4; annual income, $75 to $100. Switzerland averages $6 per case, annual income of $80; while in Russia no average fee is given, but annual income is given as $80.

Training schools for midwives exist in most European countries. The length of training varies from six to nine months in England and Prussia, to one or two years in France, one in Switzerland; Italy, two or three; Netherlands, two; Russia, three; Belgium, two; Scandinavia and Japan, one year.

Germany has 43 institutions for training midwives, 27 in Prussia, four in Bavaria, three in Baden, two in Saxony, and one in each of the remaining provinces.

The requirements for admission differ in different countries, but the general requirements prevail, such as age limit, health, character and general education. The teaching is practical and didactic. In Prussia, all graduate midwives are expected to be examined once in three years. Inspectors are assigned to supervise midwives in Germany, Austria and England, a definite number to each.

So we find that the midwife has been an integral unit of European life for centuries, a functionary, trained, licensed and supervised by the governments. Her income shows that she is an important economic factor.

On accepting the invitation of the Society to read on the midwife, my first intention was to study the records of the city clerk's office and the hospital records of New Bedford for suitable material. Later, it seemed better to extend the inquiry to include the other large cotton cities of the state, Fall River, Lowell, and Lawrence. In these four cities we find by the last census, 408,433 people. Most of these people are foreign born and work in the mills.

Our foreign population may be grouped essentially as follows: Most numerous, the French Canadian, estimated about 100,000 in the four cities. They have been with us for at least forty years. They marry young, have large families, are distinctly racial in language, and customs; are thrifty and send much of their earnings to Canada.

The Lancashire English, next in number, the whole number difficult to determine; perhaps

* Read before The Obstetrical Society of Boston, Jan. 28, 1913.

50,000 or 75,000. Portuguese, more properly called Azoreans, have come in the past fifty years. Their largest colonies are in New Bedford, 18,000, and Fall River, while the later and lesser additions are the German, the Russian, the Greek, the Pole, the Italian, and of recent years and in smallest numbers, the Turk.

A list of nine questions was sent to each city clerk, and the questions with the answers follow:—

Question 1. Whole number of births reported in 1912? and,

Question 2. Number of births reported by midwives? Can be answered as follows:—

	Total Births.	Midwife Births.	Midwife Births.
Fall River	4900	1250	25
New Bedford	3736	819	25
Lawrence	3000	952	31
Lowell	2700	400	16
	14,336	3430	24¼%

One-quarter of the mothers delivered last year in these cities employed midwives. A difference of 15% between Lawrence, the highest, 31, and Lowell, the lowest, 16.

The high rate in Lawrence might be explained by the poverty consequent on the labor disturbances of last year.

Question 3. Still births reported by midwives?

But one city, Lawrence, had received such reports, 26. Many still births must have occurred in the practice of midwives in the other cities, but the reports did not get on the records.

Question 4. Number of cases of ophthalmia neonatorum reported by midwives?

Fall River ..... 3 cases

Question 5. Greatest number of births reported by one midwife?

Lawrence	259	
Lowell	175	A Polish Austrian.
New Bedford	154	Portugese.
Fall River	145	

Question 6. Whole number of midwives?

Fall River	50
New Bedford	34
Lawrence	15
Lowell	13

Question 7. Nationalities of midwives, judged by their names and the number of each?

The number was not given in one return, Fall River.

New Bedford, Eng., 10; Polish, 3; Port., 19; Jew, 1; Afr., 1.
Lawrence, Eng., 2; Polish, 2; Ital., 6; Ger., 2; Unknown, 3.
Lowell, Polish, 3; Jew, 1; Irish, 7; Greek, 2.
Fall River, Eng. Polish. Irish.

Poland is given as the nationality in all four cities, the most distinctly separate in customs and language; England in 3; Portugal, the Jew, and Ireland in 2. The absence of the French Canadian is significant. They alone are adequately served by a sufficient number of physicians of their own race. I understand that they do obstetric work for little remuneration.

Question 8. Number of deaths from puerperal septicemia?

Lawrence	19
Fall River	7
New Bedford	4
Lowell	3
	33

Question 9. Number of deaths from puerperal sepsis known to have been delivered by midwives.

Fall River .....1 case.

To summarize:

Thirty-four hundred and thirty, nearly one-quarter (24¼%) of all the babies born last year, were brought into the world by the services of 112 midwives, representing nine nationalities.

In one city, 26 still births were reported.

In another city, three cases of ophthalmia and one death from puerperal sepsis. The total reported deaths from sepsis being 33.

The second part of the inquiry was in regard to the hospital facilities for obstetrics and for data on complications developing after midwife attendance.

Six letters were sent and five replies received.

Question 1. Number of beds exclusively for lying-in?

New Bedford. St. Luke's	14
Fall River. City Hosp. 7; Union Hosp. 5	12
Lawrence. Gen'l	0
Lowell. Chelmsford St.	3

A total of 29 lying-in beds for a population of 400,000.

Question 2. Number of free or endowed lying-in beds?

Fall River. City Hospital	7
Lowell. City Hospital	3
Lawrence. All ward beds are free.	

Question 3. Number admitted 1912 to free lying-in beds?

Fall River. City 52; Union 3	55
Lowell	12
Lawrence	22
New Bedford. St. Luke's	44
	133

Question 4. Number admitted attended early in labor by midwives?

Fall River. City Hospital 6

Question 5. Number admitted to hospital of puerperal sepsis who had been attended wholly or in part by midwives?

Fall River	10
City Hospital	8
Union Hospital	2

In a population of 400,000, we find 29 beds set apart for obstetrics. Of these, 10 are free.

One hundred and thirty-three women availed themselves of this privilege, less than 1% of last year's births.

Six women were admitted to a hospital beyond the skill of the midwife to deliver.

Ten women were admitted for treatment for puerperal sepsis, following attendance of midwives. It is of note that these occurred in one city, having the highest number of midwives and midwife births; and the one death from sepsis under attendance of a midwife.

These, then, are the figures of midwife activity in a considerable proportion of our population during last year. No one would claim that the figures are absolute; the number of births in three cities were estimated, and we know that deaths as registered may be misleading or worthless. I believe, however, that these figures of still births, ophthalmia and puerperal sepsis do represent the whole number of palpable cases of each class. Less apparent or clearly defined cases may have escaped observation and consequent recording, but in these we have the established minimum.

The study does show that the midwife is a fixed agent among our newly arrived peoples. She works for a small fee, usually, I am told, among the Portuguese for $5 for attendance on the mother and subsequent daily visits for one week. She is an economic necessity.

We agree that she is a nuisance, a relic of mediaevalism and an unnecessary evil and that she must go. But she does not go. We have ignored her and prosecuted two of her kind in this State, and last year she delivered three thousand women in our cotton mill cities.

Since we cannot abolish the midwife, we can at least teach her cleanliness, the conduct of normal labor, and to recognize the onset of complications. We can secure legislation enabling constituted authorities to adopt rules and regulations for such instruction and for her admission to practice and exclusion from practice and to regulate and supervise her work.

Such legislation exists today in 13 States. Four cities in New York State have special legislation.

Rochester has operated under a special statute since 1895.

Dr. Goler, Health Officer, writing on Jan. 8 of this year says, "In 1912 there were 5,527 births reported, of which approximately 20% were reported by midwives.

"There have been either two or three arrests of unregistered midwives, but no convictions. We have but 16 midwives in Rochester, whose nationality is mostly German, though there are two Italians.

"The Board of Midwifery Examiners have very carefully weeded out undesirable applicants. Of course we believe the midwife an unnecessary evil."

Buffalo has had a special statute for more than 30 years.

Dr. Franklin G. Cram, after outlining the manner of registration, says, "I am glad to state that this has proven entirely satisfactory. These midwives do their work in such a thorough manner and file their birth returns as required by law so that I cannot recollect that we have ever had to take one of them into court.

"As to those who practice midwifery illegally, we have no difficulty whatever. Usually in such a case there is some physician or midwife in the neighborhood who will immediately report the matter to the authorities.

"We have English, Polish and Italian midwives."

BIRTHS IN BUFFALO, 1912.

Total	11,591
Attended by physicians	6,688
Attended by midwives	4,903

THE MIDWIFE IN MASSACHUSETTS: HER ANOMALOUS POSITION.*

BY JAMES LINCOLN HUNTINGTON, M.D., BOSTON.

THE number of midwives existing in Massachusetts is about one hundred and fifty. Many of these women carry on a successful practice. In almost every section of the State there are manufacturing centres where midwives exist. And yet all this is contrary to the Medical Practice Act, for by a decision of the Supreme Court of Massachusetts this Act directly covers the case of the midwife receiving money for the attendance of women in childbirth. In spite of this law, however, the statute book today explicitly states that the fee of twenty-five cents shall be paid to every midwife reporting a birth to the city registrar or town clerk. This certainly is an anomaly! But because public sentiment is too ignorant and too feeble to enforce this law, are we to believe that the law is bad and needs modification? How can this law be modified so as to benefit the community? I maintain that no change in legislation in this regard can be of the slightest benefit to the Commonwealth of Massachusetts at the present time. The only change which must be made some time is to strike from the laws concerning the Reporting of Births the word "midwife," and the demand for such a change is not sufficiently great to make it advisable to bring before the Legislature the midwife question until

* Read before The Obstetrical Society of Boston, Jan. 28, 1913.

the general public has been educated to realize the importance of obstetrics.

The change now proposed, however, is not to strengthen the Medical Practice Act, but to weaken it. The law as it now stands is a serious blot on the statutes of the State. Massachusetts is one of two States in the Union not requiring the degree of M.D., before the candidate is allowed to take the examination before the State Board of Registration in Medicine. Massachusetts further let down the bars last year and recognized the optometrists. If the midwives are now to be recognized we may fairly ask, where is it going to end?

The effect of recognizing the midwife would be dangerous in three ways.

First, in its influence upon the general public. There is probably no other branch of medicine about which so much ignorance exists in the lay mind as the subject of obstetrics. The average American, and immigrant, too, for that matter, realizes where to seek and how to find competent medical skill for the illnesses and emergencies that beset his path, but has no idea of the importance of adequate medical attention during pregnancy, labor and the puerperium. Since the child comes into existence and later into the world by natural processes in the vast majority of cases, the need of any intelligent supervision is not recognized. The deaths and invalidism resulting from incompetent care are not traced to their source.

In many families nothing is done until the advent of the child is imminent, and then the nearest doctor or midwife is sumoned by the excited neighbor or husband, much as the fire department is called when the kitchen lamp is overturned. Any effort to introduce midwife legislation at the present day would probably meet with prompt support by the majority of our citizens who would have the feeling that the more persons available to render assistance in such emergencies the better, not realizing the vital importance of the quality of that service. Thus any effort at legislation would have an injurious effect upon the minds of the general public. It will definitely lessen the importance of proper obstetrical observation and care. They will argue (and with considerable reason) that if the State recognizes and indorses the midwife then she must be good enough for most people, and certainly if she isn't quite all that might be desired after her six months' training, why any physician after four years in the medical school must be all that the most anxious could wish for, and so with this sense of security they will call upon the general practitioner without any regard for his obstetrical training.

Second. The physician practicing medicine at the present time in Massachusetts will be seriously injured by admitting the midwife to legitimate practice. One class of practitioners will be greatly pleased and relieved if this comes about for it will immediately wash the hands of those who have been practicing in close relation with the midwives. It will show them that they have been acting wisely and well in signing birth certificates in cases they have never seen much less attended. It will make them realize even more fully that the stethoscope and the pelvimeter are no longer necessary in obstetrics. They will, with their medical diploma, naturally feel superior to the midwife and will have no pressure brought to bear upon them to improve their obstetrical knowledge. Legalizing the midwife will also work a definite hardship to those physicians in the state who have become well trained in obstetrics, for it will have a definite tendency to decrease their sphere of usefulness. When the general public is informed by its body of law-givers that any woman, after a six-months' training, is competent to take charge of an obstetrical case, the demand for the expert cannot easily be understood.

But the third and most important harm that this proposed law is capable of doing will be its effect upon the teaching of obstetrics. There is a very definite move on foot in America to strengthen the courses in obstetrics, to teach the students, by having them deliver not six cases but thirty, forty or fifty under careful supervision during their medical school days—not only that but to teach them further that no man should consider himself competent to cope with the complications of pregnancy and labor until he has rounded out his course by an internship in a lying-in hospital. In other words, the modern tendency is to lift obstetrics to the level of medicine and surgery. There is less and less talk of the "normal case" so frequently spoken of by those in favor of the midwife as a practitioner. The trained obstetrician knows that no case is normal until it is over. At any moment complications are liable to arise capable of taxing the skill of the obstetrician to the utmost. In these emergencies time is a great factor and while often medical aid may be summoned in time to render service, in a certain definite number of cases, unless a trained man is within easy reach the resulting delay means certain death for infant or mother, sometimes both. This modern teaching of obstetrics is directly in accord with the principles of preventive medicine. The obstetrician, by his care of the pregnancy, tends to prevent miscarriage, premature delivery and toxemia, and by his preliminary examination, selects the operation that he may have to perform, to give the surest chance for a strong living infant and a healthy mother. This the midwife obviously cannot do. She must, of necessity, be dependent upon the physician when trouble arises. Thus any logical method of developing a midwife system must include some definite standard of obstetrical ability on the part of the medical profession, else the midwife will call in vain for help.

If the midwife is to be trained, she must have that training in schools where she can be brought in contact with the patient in labor. At the present time Boston, while better off than

many medical school centres, is not over-equipped for teaching the students that come here for instruction in the out-patient departments of the different hospitals. Needless to say, any such considerable decrease in the number of cases as would follow the establishment of midwife schools, to say nothing of the activity of these graduates, must seriously injure the teaching facilities here in Boston.

Another phase of the effect of midwife practice on medical education must be considered. If it is true that fifty per cent. of all the labors in this country are conducted by midwives, then it must also be certain that the details of half the obstetrical cases of today are forever lost. The midwife contributes nothing to the knowledge of obstetrics.

The midwife exists only for the immigrant portions of our population. It is hard to see how she can make much progress among our native-born population. The physician exists for all classes and it is much more important to have the medical student receive the first consideration in any plans for education.

Let us see how the trained obstetrical teachers of America regard this question.

Williams,[1] professor of obstetrics in Johns Hopkins, urges among other obstetrical reforms "Gradual abolition of midwives in large cities and their replacement by obstetrical charities. If midwives are to be educated, see that it is done in a broad sense and not in a make-shift way. Even then disappointment will probably follow."

De Lee,[2] professor of obstetrics in Northwestern University Medical School, writes, "When public opinion has been raised and educated regarding obstetrics the midwife question will solve itself. With an enlightened knowledge of the importance of obstetrical art, of its difficulties, of its high ideals, the midwife will disappear; she will have become intolerable and impossible."

Dr. Paul Titus[3] of the Elizabeth S. Magee Infirmary of Pittsburgh, who was on the staff of Prof. Menge, writes, "I worked in the Frauenklinik in Heidelberg long enough to become thoroughly acquainted with midwife education and I feel that midwives educated or uneducated are unnecessary and vicious. 'Education' improves their *obstetrical ability but very little* but it does do this one thing—it makes them dangerous abortionists since it gives them an idea as to the value of asepsis and thus makes them more successful in that criminal field, and in direct proportion to their success and sense of self-security increases their business in this respect."

Dr. Skeel[4], of Cleveland, writes, "If obstetrics has any right to a place with the other branches of medicine; if its correct practice requires the wide knowledge and the skilled technic of the educated physician; if modern science has placed it on a coördinate plane with surgery, pediatrics, etc., then the proper solution of the midwife problem is not her education but her elimination."

Davis,[5] professor of obstetrics, Jefferson Medical College, Philadelphia, says, "It is my belief that midwives are a menace to the health of the community, an unnecessary evil and a nuisance. It is true that they furnish interesting pathologic cases, but this is no excuse for their existence."

Dr. J. R. Freeland,[6] obstetrician to West Pennsylvania Hospital in Pittsburg; former assistant master Rotunda Hospital in Dublin, writes, "In Great Britain, with 30,000,000 inhabitants, there are approximately 37,000 cases available annually for the instruction of midwives. The United States would need about 110,000 cases annually to train midwives to the standard required in Great Britain *which would still mean very unsatisfactory work*. The students would suffer and midwives would have to call as consultants men whose training in obstetrics had been much inferior to their own. Therefore it seems advisable to use the available material for the training of students, gradually raising the standard of obstetrics and by this means the elimination of the midwife would be only a matter of time."

Ziegler,[7] professor of obstetrics in University of Pittsburgh, writes, "I am opposed to educating and licensing midwives to practice obstetrics in this country for several reasons; first, because I believe it unnecesary, since I am convinced that a plan can be evolved and practically carried out which will give to every child-bearing woman in the country competent medical attendance; and second, because I do not believe it possible to train women of the type of even the best of midwives to practice obstetrics satisfactorily."

We are not satisfied with the present situation here in Massachusetts or anxious to allow it to continue. We feel that there ought to be a tremendous campaign started in our medical schools, and in every city and town in Massachusetts where midwives exist or where obstetrics is practiced in a make-shift way. We believe that in every town or city equipped with a District or Visiting Nursing Association and with a hospital that could devote a few beds to this cause, the problem would be simple, effective and self-suporting. The factors in the complete scheme should be (1) a pregnancy clinic, (2) a social service worker, (3) the visiting nurse, (4) the hospital beds for the serious complications,—all these under the charge of the obstetrically trained physician. To this might be added handy women and wet nurse directories.

The patient applies to the pregnancy clinic, the family is visited by the Social Service worker and an estimate is made of what the patient should contribute to the support of the institution, or where poverty exists, what charity the patient needs. At the time of application the patient's history is taken, and physical examination made; the pelvis is measured and exam-

ined; the blood-pressure is taken and the urine tested, and if all is normal the patient is turned over to the visiting nurse, who makes monthly and later weekly visits, taking the blood-pressure and doing the rough test for albumin, seeing that the patient is following out the directions for the hygiene of pregnancy as outlined for her at her initial visit. Should all progress normally, the obstetrically trained physician is summoned when the patient is in labor; this he conducts with the assistance of the nurse. The nurse makes the visits during the puerperium, reporting daily to the physician, and if all goes well the patient is only seen by him when ready for discharge. That such a clinic could be run as a self-supporting institution seems certain, even the physician should in most cases receive some compensation for his time. In 1910 the out-patients of the Boston Lying-in Hospital, contributing on the average $1.28 per patient paid all the expense of the Out-Patient Department, with a surplus of $807.82. In 1911, with an average of $1.27 per patient, the Out-Patient Department turned over a surplus of $833.31. Certainly it would seem that this answered the question of the economic necessity for the midwife.

A recent writer[8] on this subject has said: "We are totally indifferent as to what becomes of the midwife as compared with the vitally important question of how we shall provide competent medical service for the hundreds of thousands of the very best of our women while they are fulfilling the sacred obligations of maternity." I feel, however, that it would be perfectly possible to provide for the midwife and at the same time follow out our scheme for the Lying-in Dispensary. The midwives in the community should be informed that they can choose between giving up their livelihood or cooperating with the Dispensary, but that in either case they can no longer deliver women in labor. Then those midwives who show evidence of education and are able and willing to follow the aseptic precautions of the obstetrical nurse can be employed in that capacity by the Dispensary, while the others can in many cases be employed as handy women, going into the house and taking charge of the work and waiting upon the mother during her period of incapacity. Such a scheme could be developed in a community where the law was in the hands of men of sufficient education in this regard to see that the law was enforced.

It would seem as if we had reached that stage of social education where the rights of all should be recognized and respected. How can we with any justice suggest one class of service for the poor and ignorant and another for the well to do and educated? No other branch of medicine tolerates this dual standard—two classes of practitioners, one semi-trained and the other thoroughly educated. This is a problem to be solved by the obstetrically trained physicians and not by pediatricians, statisticians and board of health men unassisted by expert obstetrical advice. No man unless he is thoroughly trained in obstetrics is likely to realize the utter hopelessness of ever solving the obstetrical problem of the poor by the services of the midwife.

The course lies open. Massachusetts is in a position where public ignorance and apathy will readily allow the adoption of the midwife system—a system which has never proved successful in any country. But if we as obstetricians will firmly stand our ground and by exerting every effort educate the community in the importance of obstetrics, we can by the aid of our present law gradually solve the anomalous position of the midwife and place Massachusetts at the forefront in the march of Preventive Medicine.

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[5] Journal American Medical Association, July 6, 1912.
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SEASONAL VARIATION OF THE SYMPTOMATOLOGY OF PULMONARY TUBERCULOSIS.

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It is by no means a novel observance by those engaged in the study of phthisis that certain phenomena of the symptoms complex of this disease vary in intensity as each new season of the year advances. For instance, in the matter of weight, Minor in Ashville noticed that the chief gains were made in the winter months, the most favorable cases gaining from October to May, and falling off to a moderate degree during the summer, to recommence gaining again in October. Published reports of several institutions have made mention of this seasonal tendency as affecting the symptomatology of pulmonary tuberculosis.

This variation, so suggestive of meteorological influence, semed most strikingly discernable at North Reading during the spring months of the year 1912, and of such importance as to merit an investigation. Accordingly, clinical records of a thousand patients treated at the State Sanatorium in the past three years were examined and such data selected as pertained to weight gain, weight loss, and incidentally, but for one year only, some of the facts relating to superalimentation as a remedial measure in dealing with emaciation. Results of the findings have been arranged as follows:—

TABLE ONE.

PER CENT	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
PATIENTS GAINING	64.5	59.4	42.7	47.2	42.0	44.2	46.9	71.9	74.9	66.4	60.7	64.9
PATIENTS LOSING	27.9	35.4	50.2	44.5	50.7	50.4	47.6	27.3	17.3	25.5	29.8	27.8
PATIENTS STATIONARY	7.6	5.2	7.1	8.3	7.3	5.4	5.5	0.8	7.8	8.1	9.5	7.3

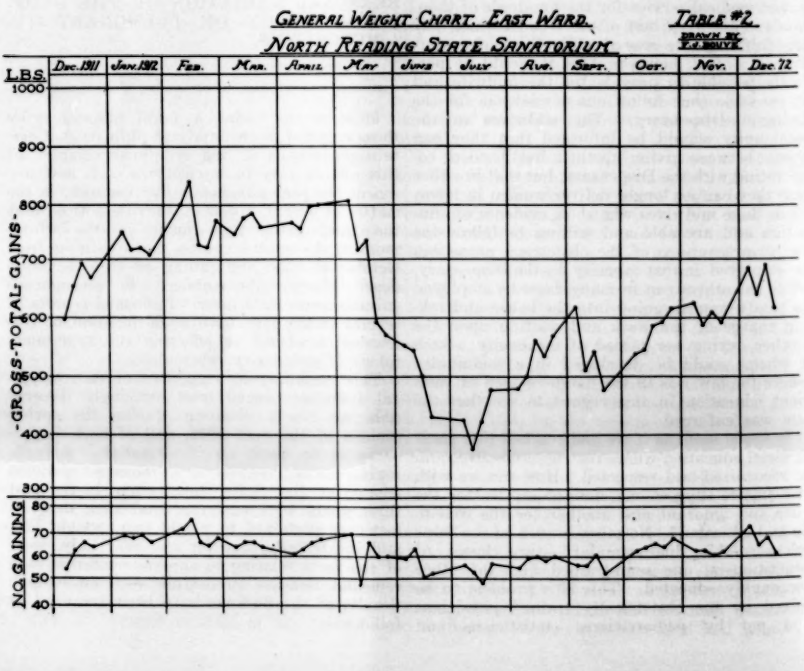
A table exhibiting the percentage of patients gaining, losing, and showing no change in weight from month to month, the basis of which consisted of statistics gathered from the weight charts of 500 cases averaging ten months' continued residence. About 5000 "patient months" were tabulated.

In Table 1 it should be noted that August, September and October show the largest percentage gaining, while the three months immediately preceding are notable in the opposite respect. The quarter including November, December and January maintains an even ratio, and the stationary rate is better sustained and at a higher level than for any other three months. For that matter the next highest is for March, April, and May, when it may be supposed to cover cases at a standstill in the cross-over from the gain to the loss column.

It may occasion some surprise that the percentage number of patients losing weight should run in so large figures. Account may be made for this by knowing that fully forty per cent. of cases admitted at North Reading since the institution was opened in 1909 were of the far advanced and progressive type.

There is much in Table 1 which speaks for itself; suffice it to say that the figures seem to fall into four main divisions corresponding roughly to the four seasons of the year.

TABLE TWO.



Tabled in the form of an index chart is the aggregate gain in pounds of the male patients treated at North Reading December, 1911, to December, 1912, inclusive. As these patients were weighed once weekly and their individual weight gains or losses recorded, the gains, based from the time of patients' admission, were totaled and the lump sum figure made to determine the course of the index from week to week. A sub-index registered the number of patients gaining each week. The greatest number in the summer months was 95, the lesser in the winter, 85. Thus the main index has indicated the gaining power for a group of approximately 90 patients, of the whole, and the sub-index the number of individuals disposed to continue taking on weight, and both indices carry through the four seasons of the year with four quite extraordinary fluctuations.

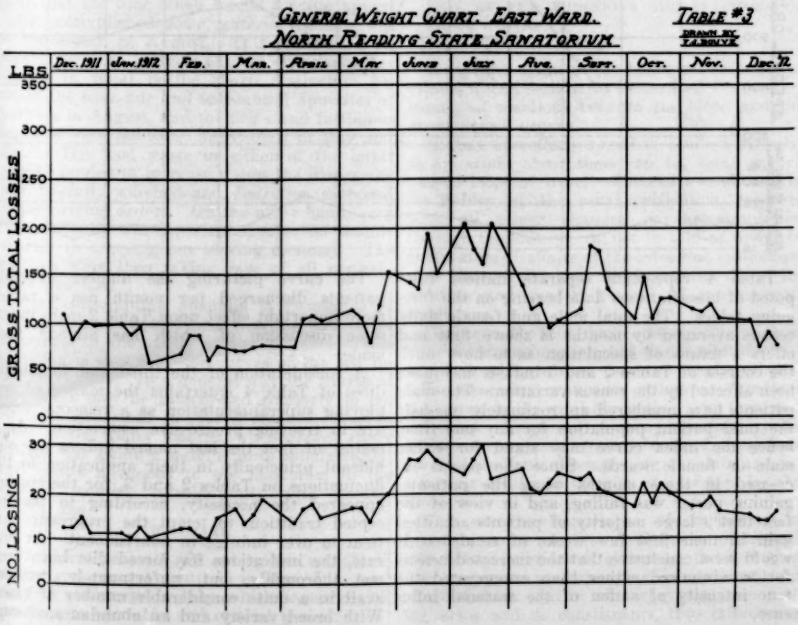
Namely, beginning with the rise in January and February, 1912, to 850 for 76 patients, which was maintained within a range of 150 pounds for about the same number throughout March and April, there was a subsequent sharp decline in May, the main index dropping 250 points. This fall continued without interruption in June to culminate on July 11 at the low point for 1912. A proportional decline occurred in the sub-index at the same time, it reaching the 1912 low point that same week.

Thereafter, the two indices record two more fluctuations, perhaps less distinct than the two already stated, but nevertheless apparent. These are seen in the quick rebound in August and September, which movement was separated by a mild reaction from the steadier and more gradual upward movement taking place as the winter months were entered.

In considering the main index of Table 2 it should be understood that patients discharged from the institution with large gains to their credit, and also that any increase or decrease in the census of the male wards caused the index to deviate somewhat from its normal course. With respect to the former factor, mention should be made that some diminution in gross gain in June and July was due to an unusually large number of discharges, patients 15 to 35 pounds above their admitted weights and therefore valuable contributors to the general gain index. For example, the week of May 23, when there were discharged gains of a total 123 pounds. The last week in December, 1912, 115 pounds were discharged in that one week.

However, after making due allowance for this loss, there is still a deficit as compared with the previous week, indicating, supposedly, as a seasonal tendency the phthisical patients' lessened ability to overcome that important symptom of progressive disease, emaciation.

TABLE THREE.



This exhibit, also in the form of indices running through the year 1912, is based upon the weight data of such male patients as were under their admitted weights. For this class and for any given week the main index marked the sum total of net losses per patient, and the subindex the number of patients. The male patients numbered between 85 and 95 through the year, as stated before. Following the course of the main index from its low point at 61 in February, a rise is met in March and April. About the same level is held until the last of May, when another decided rise began, attaining 193 in June. The greatest loss was registered in the first week in July, at 203.

Thus it appears that in the same months in which the gain index dropped in an extraordinary way the loss index rose almost proportionately. Furthermore, there is a correspondence in action of the two indices for the remainder of the year, again suggesting seasonal influence in the matter of emaciation.

TABLE FOUR.

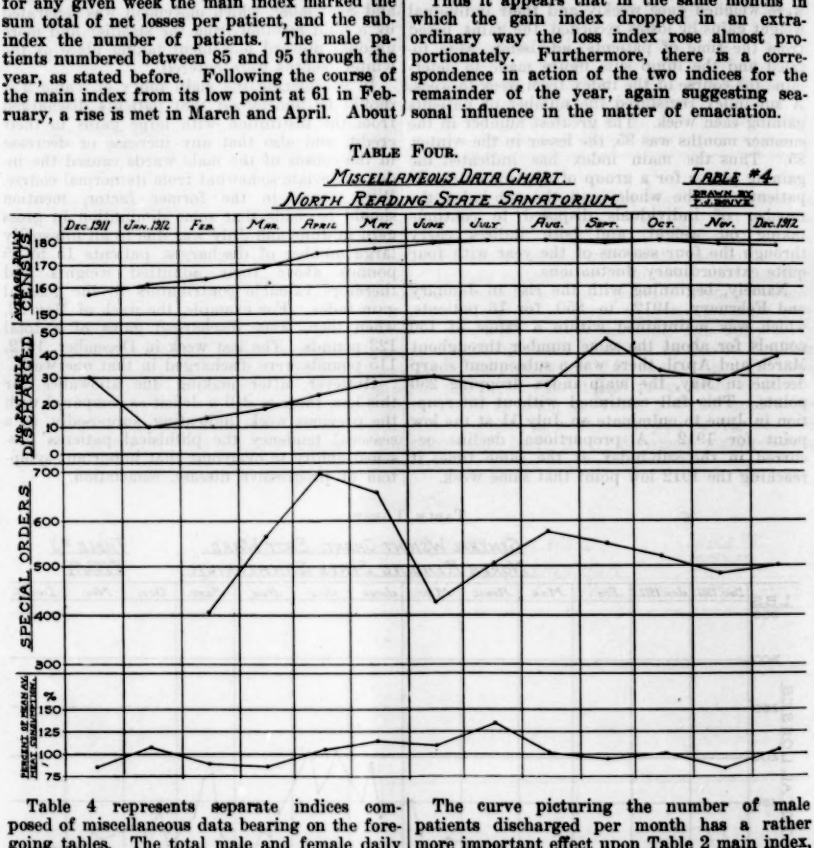


Table 4 represents separate indices composed of miscellaneous data bearing on the foregoing tables. The total male and female daily census averaged by months is shown first and offers a means of speculation as to how much the courses of Tables 2 and 3 indices may have been affected by the census variation. The male patients have numbered approximately one-half the total patient population for any one time, hence the index curve may stand for either male or female wards. Since the census increased in those months when the patients' gaining power was failing, and in view of the fact that a large majority of patients admitted gain in their first few weeks of residence, it would seem conclusive that the increased census factor minimized rather than exaggerated the true intensity of action of the seasonal influence.

The curve picturing the number of male patients discharged per month has a rather more important effect upon Table 2 main index, some discussion of which has already been made.

A consideration of the third and fourth indices of Table 4 entertains the matter of employing superalimentation as a remedial measure in treating progressive emaciation. As a matter of fact the last named indices are significant principally in their application to the fluctuations on Tables 2 and 3, for therein has appeared the necessity, according to the accepted tradition, to tempt the progressive patient to over indulge in nourishment. At any rate, the indications for forced diet have been met thoroughly, but, unfortunately, without avail in a quite considerable number of cases. With broad variety and an abundance of sup-

ply, there has always been at hand the opportunity to prescribe almost any kind of nourishment approved by authority or fancied by the patient.

In order to simplify and make more exact the method for providing forced feedings, a system was effected and successfully carried out of entering in writing all prescriptions or orders for special diet on duplicate blank forms provided for that purpose. This not only insures that the patient shall receive the prescribed nourishment, but also serves as a record for future reference, and in the latter instance is finally filed at the main office. It should be explained that all cooked and prepared foods outside of the regular dining room and ward fare come within the province of the special order rule. Of course the latter does not include the mid-forenoon and afternoon lunches provided for all patients and consisting of milk, uncooked eggs, malted milk, beef tea, etc.

The special order records are the basis for the third index of Table 4. Comparing this index with Table 2 index, one gains at first the impression that they are quite out of joint with one another. In February, the month of greatest gaining power, the number of special orders served was at a minimum, while in May, the month characterized by the greatest loss in weight, amount of forced feeding reached nearly the maximum point for the year. From a further study of the two charts it would appear that the time when forced feeding apparently accomplished some material benefit, was in the month of August. This evidence is in accord with the writer's clinical experience, for clearly in mind is the sharp distinction between the bona-fide and substantial appetites of patients in August, and the fickle and fastidious tastes of even the same individuals in May and June. The food waste in either of the latter months tended to increase unless the dispensing was carefully watched and discretion exercised in prescribing orders. On the other hand, very little difficulty was experienced after the middle of July in carrying out serving economy. The patients were then taking care of all nourishment provided.

Meat consumption amounts to thousands of pounds per month at North Reading and varies according to the needs of the patients. This variation is shown by the curves of the last index in Table 4. In a general way the course of this index may be interpreted similarly to the one just mentioned in that it reached its minimum in the colder months, when almost every patient was gaining weight quite satisfactorily, and thence advanced to the maximum in the warmer months, coincidentally with greater weight loss.

SUMMARY.

Phthisical patients are apt to lose rapidly in weight and general condition in May, June, and the first two weeks in July, which season constitutes an unfavorable and critical period.

Phthisical patients make an extraordinary recovery in weight and general condition in the month of August, which is a surprisingly favorable time of the year.

August, September, January and February are the most propitious months for obtaining successful results in treating pulmonary tuberculosis.

Forced feeding in the unfavorable season, as mentioned above, seems to have availed very little in the limited number of cases studied at North Reading.

A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

(*Continued from page 392.*)

BY H. W. MARSHALL, M.D., BOSTON.

FURTHER DISCUSSION OF ACTIONS OF VASCULAR CONSTITUENTS UPON KIDNEYS, INTESTINES, LIVER AND NERVOUS SYSTEM; AND CONSIDERATION OF THE FUNCTIONS AND REACTIONS OF THESE ORGANS.

Returning again to the biological sequence of events, there remain to be noticed further actions and reactions between the blood and the above named organs.

Kidney excretions cannot be studied directly, as intestinal absorptions can be, from experimental loops of bowel. The exact conditions in the kidney at the renal epithelium, together with all minor changes in the circulation through the kidneys, cannot be told as precisely as the state of affairs at the intestinal epithelium of a Thiry-Vella loop which permits direct inspection and perfect control of experimental conditions.

Consequently there have arisen different theories of kidney function, but the weight of physiological evidence is in favor of renal epithelial cells possessing unknown secretory functions analogous to the vital absorptive, secretory, and excretory functions within intestinal cells. Readers are referred to text-books of physiology for full particulars concerning the data and interesting details of theories of excretion by the kidneys.

The extreme importance of variations in blood-pressures in the maintenance of normal circulatory relations is shown by the fact that low pressures accompanying hemorrhage and surgical shock lead to temporary suppression of the urine and its constituents, thus influencing

vascular concentrations very materially at times. Probably normal absorptions from the bowels are interfered with as seriously by abnormalities of blood-pressures as normal excretory functions are, and herein may lie the merit of certain glandular products, for example, powdered thymus gland, when it is employed in treatment of arthritis,—blood-pressures altered from its administration may indirectly change vascular conditions.

Magnus-Levy believes single functions of the kidney, for example, the excretion of urates, may vary independently, while other functions, like those of urea and water elimination, remain constant. This seems likely, but the many variations and causes which lead to varying proportions of urinary constituents among different persons cannot be discussed. They may be ascertained from perusal of books dealing with urinary analyses and their interpretations.

The gastro-intestinal tract as an excretory organ still has to be studied a great deal. It is known that certain drugs, like morphine, are excreted mainly into the stomach and intestines; and certain recent experimental studies upon animals show that substances excreted or secreted by the epithelial lining of the intestine may have strong toxic properties. These experiments are so suggestive that they will be described briefly, and the summary of the authors given, although the results do not bear directly upon gout, ptosis, or the particular intestinal toxemias that are due to harmless intestinal bacteria.

Stone, Bernheim and Whipple operated upon dogs and tied off a loop of the small intestine 12-15 cm. long, beginning just below the pancreatic duct and ending just above the jejunum. At the same time an anastomosis was made between the portions of gut above and below the occluded loop. Food could thus pass as usual, and the continuity of the tract was restored simply with the additional feature that a small, important section was entirely closed off with its blood supply intact, so that the function of the intestinal mucosa could continue in the closed sac.

Previously to occluding the loop by tight double ligatures at either end, the lumen of the occluded section was washed out thoroughly to remove food materials and bacteria. In this closed portion of the gut there collected a substance which was very toxic to the animal producing it, and to other animals when it was introduced into them.

The writers summarize their paper as follows[10]:—

High loop obstruction in dogs causes very rapid death, 24 to 60 hours as a rule, even when the loop contains no food material nor secretion from the stomach, liver and pancreas. Low loops (ilium) of similar nature are much less rapidly fatal.

Surgical drainage of this loop will save the dog's life.

Excision of this duodenal loop does not necessarily disturb the animal's health.

The material introduced into normal animals produces many changes similar to those found in the animals with closed duodenal loops, namely, low blood-pressures and temperature, excretion of large amounts of fluid into the intestinal canal and fatal shock. This toxic substance given in a single injection causes a reaction in the dog which is almost identical with the picture of anaphylaxis in this animal.

The toxic material is not injured by heating at 60° C. for any length of time, centrifugalizing and filtering in any manner. It is not impaired by prolonged autolysis, by pancreatic digestion and bacterial fermentation. Hydrolysis with dilute acids probably destroys it.

No such toxic substance may be obtained by autolysis, digestion or putrefaction of the normal intestinal mucosa.

Whether the toxic symptoms are due to purely excretory products, or to normal useful secretions of the duodenal epithelium that pass along the lumen of the intestine with the food without being absorbed, these experiments do not show. They suggest, but do not prove, that retentions of excretions by the alimentary tract may possibly cause symptoms just as retentions of normal waste products by the kidneys are known to do.

Dr. Herter approached the subject of indol excretion in animals by operating upon them, turning up an experimental intestinal loop to the surface of the abdominal wall, and then examined its contents for indol when he injected subcutaneously large quantities of indol into another part of the animal. No indol was demonstrable in the excretions of the intestinal epithelium.

The writer knows of no experimental data regarding the excretion of urates by the bowel, although they can be demonstrated deposited in the intestinal mucosa of gouty patients.

The liver and spleen are important organs which occasionally show pronounced defects accompanied by arthritic symptoms, and because they play important, although imperfectly understood, physiologic rôles in the maintenance of health, their defective functioning may be thought plausibly to be related to the origin of arthritic manifestations in those instances where joints and liver or spleen are both affected.

One patient whom the writer had the opportunity of seeing with another physician, presented the waxy appearance of a severe anemia, and the blood had a marked diminution in hemoglobin but exhibited no abnormally formed elements in it. There was a greatly enlarged spleen and also enlarged axillary and inguinal lymph glands. The spleen was examined later at autopsy. It was large and soft and showed under the microscope only a proliferation of the normal splenic elements.

Kidneys of this person at autopsy were of average size and of normal appearance. The intes-

tine and stomach were smooth and pale, and no marked visceral displacements were recorded. The liver was not remarkable. The articulations presented multiple periarticular swellings without involvements of cartilage or bone.

Before death bacteriological examinations of the intestinal contents showed large numbers of bacillus aerogenes capsulatus in the loose, frequently evacuated stools, and irrigations of the colon ameliorated symptoms for a brief time. The patient was a young woman of twenty-two years. No other etiological factors besides those mentioned could be made out in the history.

The explanation of this case (which the writer would make) in the absence of any more definite one, is that bacterial products from the intestinal tract—in this instance perhaps largely those from bacillus aerogenes capsulatus—caused irritations and pathological appearances in the spleen and also produced the abnormal joint conditions. The assumption is made that unusual weaknesses occurred simultaneously by chance in the spleen and the joints.

If more were known about the normal physiology of the spleen it would be possible perhaps to pick out instances in which splenic defects could be considered causes as well as accompaniments of arthritic disease, just as visceral ptosis at times may precede and at other times be an accompaniment of joint lesions.

From what is known already about variabilities of tissues and normal physiological sequence of events it would be the writer's inclination to associate the three abnormal conditions in intestines, spleen and joints in a rough general way when they are co-existent.

The function of the liver is quite varied. In it urea is formed to large extent, although urea is excreted mainly by the kidneys, while the bile formed by liver cells does not contain urea. The conversion of urates and of intestinal bacterial products is accomplished perhaps also in large measure in the liver, and the writer can see no objection in considering gout or intestinal toxemias essentially of hepatic origin when this important organ is very defective.

Under such circumstances its abnormal functioning is the most prominent feature among the many factors which determine blood conditions. This seems the logical view, although the kidneys simultaneously may be the direct cause for backing up in the circulation of substances which they cannot take care of, because they do not have sufficient additional capacity, although possessing average activity, to compensate for liver defects.

Details of liver physiology and therapeutics will not be entered into extensively, as, like intestinal conditions they are too numerous and obscure. The remembrance of the existence of the liver when any given condition is considered, and familiarity with the importance of its known functions in the normal sequence of physiological events, may, however, materially modify the direction of treatments.

Treatments of internal organs like the liver and abdominal viscera are comparatively crude, apart from surgery and a few drug treatments, owing to inaccessibility and lack of precise knowledge of the details of normal functions of such organs.

Yet occasionally much may be done by the simplest means, and a forcible example was experienced by the writer recently in the treatment of a case of arthritis of intestinal origin. This patient was recovering at a fair rate, but nevertheless became dissatisfied with the slowness of her progress and consulted another doctor, who simply instituted extremely vigorous abdominal massage, with exercise for spine and limbs. The knees were repeatedly pushed forcibly up toward the chin, and the abdominal viscera were thus subjected to strong alternate pressures and relaxations. The result was that recovery from joint symptoms was very appreciably hastened.

There is no doubt in the writer's mind that this thorough kneading of the viscera mechanically stimulated the flow of lymph in the various organs, helped to empty the gall bladder, and to stimulate peristaltic, absorptive, and secretory functions of the digestive tract. It so changed the environments of the tissue cells of the abdominal viscera that they worked more normally and the indefinite chronic sluggish tendencies were overcome with unusual rapidity.

Since then the importance of direct stimulations by physical agents, heat, light, electricity and mechanical force has been better appreciated by the writer. Occasionally they have been tried with very considerable success.

The same general remarks that were made about treatment of intestinal conditions apply to treatments of liver, spleen and all organs, namely, that the obvious defects in the tissues locally are to be treated directly, and also indirectly by measures directed toward other contributing factors located in other organs.

The influence upon vascular conditions of internal secretions, and of obscure defects in normal function of various body tissues cannot profitably be discussed, although rarely perhaps these contribute to important degrees to the development of arthritis. Gout at times may be due to abnormalities in formation of urates by the tissues in general rather than to defective functioning of the kidneys or liver. Intracellular enzymes, circulating internal secretions, etc., are known to exist, but do not exhibit their defects in a way that can be recognized and consequently cannot be treated except in the most haphazard manner.

The nervous system is the controlling one of the body, and together with the common carrier, the blood, combines and correlates all bodily functions into a harmonious whole. Like all other tissues, the central nervous system shows many functional and anatomic variations. Mental capacities differ as much or more than muscular, digestive, or other functions. And there must be in nerve cells abnormal variations due

to congenital and acquired causes, as well as normal variations in them within physiologic limits. Variations, anatomic and physiologic, occur with nervous tissues as with all others, and are not to be considered identical.

Headaches and mental irritabilities in intestinal toxemias, gout, and other types of joint disease due to circulating products in the blood, presumably show the direct effects of these substances acting upon nerve cells in the brain. Theoretically variable articular pains, when not due to pressures upon the nerves or their terminations, are caused by direct irritations of sensory nerve cells of the spinal cord. If spinal cord cells react easily toward circulating substances then articular pains are prominent features, whereas, when spinal cord cells are very resistant pains may be absent, as is actually the case frequently.

There are no reasons for supposing that variations do not occur in nervous tissues, and, on the contrary, all clinical data are in favor of such variations.

Theoretically, nerve cells and nerve centers may be supposed at times to be congenitally defective, or to have been weakened through some toxic substance. Then the results of such weaknesses, whether they lead to digestive disturbances with resultant intestinal toxemias and in turn to occasional joint lesions, or whether they lead to defects in production or conversion of urates with occasional articular involvements, may be considered the primary cause for the arthritis. In this sense there may be nervous origins variously for gout, different forms of arthritis deformans and intestinal toxemias.

SUMMARY.

This paper represents the results of study of arthritic cases as they have been met in actual practice, and consideration of the various methods of treatment, good and bad, that have been tried by many physicians upon the particular patients that the writer has seen.

In the attempt at fitting together clinical data upon a rational scientific basis into a more perfect hypothesis for directing treatments, there have been made examinations of the successes and failures of others, and trials at explaining these results from various scientific aspects. Finally, there have been applications and confirmations of new ideas thus gained in modifying and amplifying therapeutic measures, as the writer himself has tried the latter upon patients.

Therefore the few new ideas herein presented are derived mainly from exhaustive study of existing conditions, rather than from long series of new laboratory experiments that have led to new conceptions. It has necessitated search, covering a period of several years and carried on fairly continuously, into the facts already known but not thoroughly understood about articular conditions. And it has meant careful weighing of relative values of a great variety of biological, physiological, anatomical, chemical and clinical facts.

In this way largely the writer believes that successes in treatment will increase in the future, for there are already too many kinds of therapeutic agents in use and too little skill in handling them. What is needed most is knowledge how to employ more accurately the ones that are at hand; and this can be obtained only through study, comparisons of results, correlations and re-arrangements of facts, as has been attempted in this paper. Some of the points that this study has brought into prominence are the following ones:—

Anatomical and physiological data are often confused by clinicians owing to the fact presumably that both are encountered always in every situation. It should be clearly kept in mind that they are not identical, but that structural and functional peculiarities of living tissues each are independent variable quantities. For example, that some individuals, some organs, and some microscopic living cells may be relatively small in size, yet possess normal or even unusually great functional activities, while other persons, organs and living cells of the same kinds may be anatomically well developed but functionally weak.

Variations, anatomical and physiological, are exceedingly common in living tissues and not infrequently are of marked degree. This fact is frequently ignored or minimized, with the result that erroneous assumptions of constant or average values for variable factors lead to inaccurate conceptions and failures in treatments among individual cases.

Substances that are harmless ordinarily, and that are present constantly in the circulation, have their complete significance ignored or minimized often owing to the fact that they are so familiar. Variations in amounts of comparatively harmless circulating waste products, like urates and certain metabolic products from intestinal bacterial activity, probably give rise at times to pathological changes in various body tissues.

Etiological obscurities at times are caused by unusual combinations between two or more exceptional variations in well known conditions. Origins in such instances are likely to be attributed erroneously to assumed unknown specific causes which really do not exist. Gout and intestinal toxemias illustrate such etiological obscurities.

The confusing clinical manifestations of gout, and of certain mild intestinal toxemias with arthritic lesions, can be explained satisfactorily only upon the basis that such persons possess unusually non-resistant joints, or that excessive amounts of mildly irritating waste products associated with these conditions circulate in the blood, or that both of these unusual variations in blood and joints simultaneously exist.

Proportions between factors instead of independent single values of any one determine

the development of pathological changes. For example, abnormal concentrations of vascular constituents depend upon the ratio between the rate of absorption and rate of excretion; and again the development of pathological joint changes depends upon the ratio between articular resistances and the degrees of irritation produced by vascular constituents acting upon the joints, rather than upon the absolute quantities of irritants in the blood. The latter may be excessive without symptoms if joints are unusually resistant.

Any single factor may have either large or small values independently without upsetting normal healthy relations, provided other factors vary in the same proportion and in the same direction.

On the other hand when variations among related factors occur simultaneously in opposite directions, and lead to deviations in the blood from normal healthy proportions, then pathological changes make their appearance as soon as tissue resistances are overcome. Comparatively slight variations combined in this way can produce pathological appearances in some instances.

Many grades in severity of arthritic symptoms that are observed clinically can be explained best by remembering the many different values that are possible theoretically in the ratio between variable tissue resistances and variable vascular concentrations in the same person and among different individuals.

In practice it is possible to regulate proportions and ratios therapeutically between contributing elements without knowing their absolute values. Restoration of health is accomplished simply by increasing or diminishing one factor while the others remain unchanged; or more effectively it is done by making the other factors diminish or increase simultaneously in opposite directions from the first one until symptoms subside and healthy balances are regained.

Low resistances to circulating urates and intestinal bacterial substances are likely to occur simultaneously in other tissues besides the joints, and must be acknowledged to exist in order to explain satisfactorily all the other variable clinical appearances that accompany gout and intestinal toxemias.

Among them severe gastro-intestinal symptoms of gout, and visceral saggings associated with intestinal toxemias, must be ascribed primarily to a harmful influence of circulating substances directly upon the tissues of the stomach and bowel.

The products of intestinal bacterial activity which give rise to mild autointoxications are probably derived mainly from the colon group of bacteria because the latter almost always predominate in the intestinal flora.

Other species of intestinal bacteria probably contribute their smaller share at times, and special organisms like bacillus aerogenes capsulatus or streptococci, which not infrequently are present in the intestinal contents in considerable numbers, perhaps produce toxemias dependent upon the substances that are developed only by these organisms. With these latter bacteria the quantitative as well as the qualitative effects of their metabolic products in the circulation ought to be considered of importance in the production of pathological changes.

The chemical nature of circulating bacterial irritants cannot be told from facts known at present, nor whether several substances possess irritating properties when they are in too great concentrations in the blood.

Presumably they are normal waste products of bacterial metabolic activity, and the presence of indican and ethereal sulphates in the urine fix suspicion upon the group of aromatic products of putrefactive decompositions,—phenol, cresol, skatol, and indol. But it must be admitted that so little is known of the concentrations and significances of bacterial substances in the circulation, and even of their presence in the blood, that many others cannot be denied to possess significance also in auto-intoxications.

Many physiological facts, which depend upon interactions of various body tissues, cannot be proven directly by regulated experiments owing to the impossibility of controlling the many variable quantities concerned with them with sufficient accuracy to make results show causes that are producing them. And the difficulties are so great that probably many complicated truths never will be directly proven.

However, many unproven physiological ideas are extremly important in management of therapeutic procedures, and must be employed as long as their use materially assists in the relief of patients. Because satisfactory proofs for many theoretical ideas can only be expected indirectly through results from their use, it should be realized that the only way progress can be made under these conditions is through application of these unproven theories.

Visceral ptosis may be congenital or it may develop from intestinal toxemias. It may follow simple mechanical defects in abnormally relaxed abdominal walls. The latter often originate from stretchings of repeated pregnancies and continued postural defects. Ptosis may arise from pressures of clothing, removal of visceral organs and intrathoracic abnormalities; and finally it may develop from serious pathological conditions,—strictures due to carcinomata, non-malignant strictures associated with ulcerations, intestinal obstructions from adhesions and strangulating bands, etc.

Arthritis of intestinal toxemic origin very frequently is associated with simultaneously developing visceral ptosis, and both then must be thought of as caused primarily by a single defective vascular condition.

Arthritis of this type may exist without much ptosis, and ptosis of pronounced grade may be present without joint changes. Intermediate

variations are observed in other instances, and all combinations between the two depend upon the variable ratio existing between the reaction of the gastro-intestinal tract and the reaction of the articulations as both are acted upon by a common harmful vascular influence.

Gout and intestinal toxemias may have several origins owing to the fact that concentrations of vascular substances are dependent upon several factors.

Because concentrations in the blood are always due to failure of the kidneys to rid the system of excessive quantities of the substances in question some persons are inclined to consider gout and intestinal toxemias of renal origin; but it seems better to the writer, however, to recognize the fact that formations, conversions and destructions of vascular substances in the body may be abnormal and lead to accumulations in the blood stream when the kidneys have average, although insufficient powers of excretion.

Theoretically, any one, or several, of the physiological processes that normally take place associated with the passage of substances through the body may be considered to be the cause, or causes, of joint lesions when they are sufficiently defective.

Therapeutic measures should be controlled by thorough knowledge of the main facts of physiology, physiological chemistry, bacteriology, cellular biology, and anatomy. All these may be included conveniently under the general term of biology.

With this biological conception of each patient it is possible to estimate the defects that are present among the many factors which always regulate each patient's health. Single defects can be treated more successfully from better appreciation of the importance and significance of details, and there also is less chance of omitting treatments of important defects through failure to comprehend the situation as a whole.

When success depends upon treatment of combinations of several difficultly recognized defects, knowledge of general biological principles furnishes the only means by which it can be attained.

The aims of physicians must not be toward securing remedies that are only new, attractive, and easy of application, because efficiency does not depend upon these qualities mainly.

The only reliable way, on the contrary, of increasing efficiencies of treatments is by laboring to become familiar with general biological conceptions. And then it soon becomes obvious that progress must be made by use of practical working hypotheses, and that improvements in results will show themselves as very gradual increments in skill when the latter is gained from better understanding and application of many complicated unproved theoretical ideas.

Pronounced lack of precise knowledge is the most serious obstacle to progress now that is seen very commonly among practicing physicians; and the paramount importance of this defect, which by far exceeds other ones although it is easily overlooked and poorly appreciated, has been forced upon the writer from his own personal experience in making many of the errors himself herein described. The true significance and great importance of these errors, from improved results when they have been avoided, have been learned from actual experience. Therefore, in any fair, impartial discussion they must be given first place although they are not quite as attractive as new discoveries.

From past experience it seems to the writer a safe prediction that greater success in treatment of patients in the future will depend as much upon improvements in the understanding of the biological *combinations*, which always control health, as upon increased knowledge of important details of single factors that contribute to it; and that increased knowledge both of single features and of combinations, not increased numbers of agents, will be responsible mainly for improvements.

[10] Intestinal Obstruction: A Study of the Toxic Factors. Bulletin of The Johns Hopkins Hospital, June, 1912, Harvey B. Stone, Bertram M. Bernheim and George H. Whipple.

Reports of Societies.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

NINTH ANNUAL MEETING, ATLANTIC CITY, N. J., JUNE 3, 1912.

PRESIDENT'S ADDRESS—THE ERADICATION OF MALARIA.

DR. JOSEPH H. WHITE, New Orleans: Malaria possesses a wider interest than any other of the tropical diseases in the United States—particularly in my native South. There have, however, been countless deaths charged to malaria that do not belong to it. Many of us know cases in which general physicians, through ignorance, will make a diagnosis of malaria and sign a death-certificate giving that as the cause, yet in which the cause is absolutely foreign to this disease. Again, physicians will charge up knowingly even such things as syphilis to malaria; because they are afraid to wound the sensibilities of the patient or his family. The morbidity of malaria, rather than the mortality, is the question that makes it of importance; and particularly in the South. I do not think the morbidity is over-estimated, although the mortality is largely so. We all know the importance of doing away with conditions that sap the vitality of the race. The filling up of our country with inhabitants has accomplished the desired result in many parts of the Northern and Middle States, practically obliterating malaria, without interference on the part of the physicians. There are many places where this is not so; and the remedy is first to be applied in a palliative way, by excluding the mosquitoes from

houses, draining small pools of water near at hand, and oiling those which cannot be drained, using for the purpose an oil that has been devised by Colonel Gorgas, which is composed of resin, caustic silver, and some other things that are cheaper and more effective than the oil. The main point is the elimination of the swamps, in the South particularly. To arrive at the proper remedy we must appeal to the state and the nation, as well as to the citizens; so as to get in more people and to expend more money and energy in draining these swamps, and so do away with this curse of malaria. I have seen the gradual recession of swamp land before population in my own state and Florida, and the gradual dying out of malaria before the advent of population. In the last fifteen years, there has been tremendous recession of malaria all around along the Mississippi River, where it used to be impossible for a white man to live. That is due to the fact that the people have been clearing a belt three hundred yards wide around their houses, living in the second story, and keeping the people in the house until the dew is off the grass in the morning. Now, if we apply, alongside of these measures, scientific measures, by wiping out the swamps, we will ultimately wipe out malaria in the entire country. Can we not interest the state and the nation in the obliteration of the big swamps? Is this not an integral part of the movement started for the improvement of waste lands? Should not national drainage go alongside of national irrigation, and is it not as important? Irrigation led only to public wealth; this leads to both health and wealth. In the low-lying coast lands of South America, neither the mixed breed of Indian and white, nor the pure white, can live; but the negro can, and he has taken possession of the coast lands, pushing the white people back. The same thing threatens us; but we can remove a part of the threat, if we can remove the prime cause of negro supremacy. It is by right of inheritance that the negro can stand the malarial climate. If we do not remove malaria from the South lands, we shall find the negro race the only man who can stand it. I do not mean any ill will to the negro; and I should not have mentioned the South at all, except for the fact that my own native land is the most afflicted with this scourge.

DISCUSSION.

Dr. M. P. Ravenal: Madison: My boyhood home was at Charleston, South Carolina; and I was brought up on the idea that "country fever" (as malaria was called in that region) was invariably fatal; and that for a white man to spend the night at St. Andrew's Parish, which was across the river from Charleston, would be an act equal to shooting himself. My father always had a strip of land, three hundred feet wide, that he did not allow to be cleared, bordering every piece of water on his grounds. This made a barrier of trees between the water and the house. All through the lower regions of the South it is the habit for people to leave their plantations on the fifteenth day of May, and not to go back to them until after the first frost in the fall. Many people say that the negro is immune to malaria, but I have seen negroes die like flies of it. The plantation negro is immune to this disease; but the negroes from the foot-hills of the mountains, when taken down to the phosphate fields, are found to be very susceptible. The immunity of the negro race to malaria is an acquired immunity. The result of progress around Charleston has been such that at present the white man sleeps in St. Andrew's Parish with impunity. This is due to the drainage of the swamps. There is no screening of the houses even. An uncle of mine, for the first time last summer, lived on his plantation near Georgetown, South Carolina. He screened his house, and the whole family lived there throughout the summer without having a touch of malaria. The poor whites of the South are generally accused of laziness; but the fact is that they are as energetic as any people, when they are well. Malaria, together with hook-worm disease, has, however, been a primary factor in keeping back certain parts of the Southern country. There is no doubt that with the drainage of these malarial districts and the cultivation of areas of land, there has been an enormous material development, so that the public health question is of great importance to this country from that standpoint, as well as the racial one.

Dr. B. F. Royer, Harrisburg: Malarial fever cuts a very small figure today in Pennsylvania. It is a reportable disease in that state, and a placard is put on each premise where it exists. It was common for physicians to speak of indefinite fevers as a touch of malaria, but the reporting of the disease has done away with this loose method of diagnosis. Physicians were formerly in the habit of calling typhoid fever, malaria, because the former was reportable and the latter not; but now they must make the differential diagnosis between these two diseases, and the State Laboratory is available to make the tests. We have a little shipping outfit, which holds three glass slides; and this outfit is sent to the physicians all over the state, so that they may send smears to the laboratory. Our outfit for the Widal test is a slight modification of Wright's tube, so that we send the blood in a sealed tube. I do not know the details used in the laboratory itself.

Dr. E. H. Hume, Changsha, China: In Central China, where we have a great deal of rice raised, there is none of the anopheles within hundreds of miles; yet in other sections of rice country there are crowds of them. The studies now seem to indicate that the presence of anopheles has something to do with the kinds of fish, etc., contained in certain waters. We hope within the next few years to find the solution of this problem. The distribution of malaria is being worked out in China as a problem of much importance, because the disease is so scattered in that country.

Dr. William H. Jeffries, Shanghai, China: There has been a bill passed in the State Legislature of Maryland providing that the state will pay two-thirds of the cost of draining any swamps, if the land owners will pay the remaining third. So far, very few land owners have taken advantage of this law, therefore the draining of swamps on a big scale will have to be done by the State and Congress. I do not think that individual enterprise will do a great deal in that direction.

COMPARATIVE OBSERVATIONS ON THE BIOLOGICAL CHARACTERISTICS OF SPIROCHETA PALLIDA AND SPIROCHETA PERTENUIS.

Dr. Henry J. Nichols, Washington, D. C.: The differences in morphology are slight; the same is true of the cultural characters so far observed. No

specific antibodies have as yet been demonstrated. Group reactions occur in the complement fixation tests with culture. Distinctive lesions occur in experimental lesions in the rabbit and the action of salvarsan is distinctive. A review of our present knowledge of the biological characters of Spirocheta pallida and Spirocheta pertenuis throws but little light on their distinctive pathogenic properties, and shows the need for further investigation along some of the lines indicated.

DISCUSSION.

DR. CREIGHTON WELLMAN, New Orleans: An attempt to work out exactly some of these relationships by means of a complement deviation or by other means is a thing that, while involving a great deal of work, is very much worth while. I discovered Pertenuis and published my paper dealing with this discovery a few weeks after Castigliani's discovery. It, therefore, served merely as a confirmation of his; but I worked out the Spirocheta and sent my paper away long before I saw his paper. He believes that there are morphological differences between this and the other form of spirochetae, the Pertenuis being blunt at one end and sharp at the other. I believe this difference to be due to faulty technic. I consider them to be entirely distinct, and I do not agree with those who seek to unite the two diseases or the two parasites. If you see a good case of yaws and one of syphilis, you get the two kinds of cases settled in your mind. We need more scientific care in solving the question of the tropical diseases.

DR. NICHOLS: One drawback to this sort of work in tropical diseases is that laboratories in the tropics are not so well fitted up as they are in the temperate zones. You may see many cases of the yaws in the backwoods of the tropics, and have no facilities to work with; while here we have the facilities, but not the cases. Therefore the work is slow.

CULTURAL STUDIES OF MALARIAL PARASITES.

DR. CREIGHTON WELLMAN, New Orleans, for DR. C. C. BASS, New Orleans: Dr. Bass has gone on a scientific expedition, sent out by the Tulane University School of Tropical Medicine, at New Orleans, and is now in Central America studying malaria. He has succeeded in cultivating the malarial parasite and following out the entire cycle of schizogeny, not only in culture, but in transplants. This work was begun some months ago; and some of you may remember his preliminary announcement in the *Journal of the American Medical Association*, stating that the malarial parasites had been kept alive for seven weeks. His later work was done by the same method as described in that article. I believe this discovery made by Dr. Bass is worthy to stand beside the former discovery, that the mosquito is the host of the malarial parasite.

A SIMPLE METHOD OF DIFFERENTIATING DISEASE-BEARING INSECTS.

DR. C. S. LUDLOW, Washington, D. C.: I shall first discuss briefly the general external resemblances and differences between ticks and bed-bugs, lice and fleas. Wing venation offers a good means of differentiating groups of flies. The family is always indicated, and sometimes even the genus made evident, by this means. The differences are easily recognized and are available to every one on account of their simplicity. The classification of the mosquito is in almost inextricable confusion.

DISCUSSION.

DR. CREIGHTON WELLMAN, New Orleans: The classification of mosquitoes is in complete confusion, as Dr. Ludlow has said. In no other group of arthropods is there such a great number of people rushing in to describe new species, as in mosquitoes. I would also deprecate the attempt to name animals and insects by people who are general entomologists and not specialists. If you wish to work with a species of mosquito, first find out just what it is by sending specimens of it to someone especially working with mosquitoes. The same thing holds true of other kinds of insects. Another thing that I deprecate is the guessing at the rôle played by every blood-sucking insect. In order to play a pathological part, the insect must be a common one, be closely associated with man, and suck blood repeatedly. So far as the philogenetic significance of this wing venations is concerned, I am not so sure of the final state of that question; but there is no doubt of their taxonomic value. There are hiatuses in the life-history of almost all these insects, and the filling up of some of these gaps requires the gathering of data, which students in tropical medicine might help us with. The best manner of clearing up the habitat of the tsetse fly, the glossina, is based on the fact that a peculiar degree of shade and humidity is necessary for its reproduction. The clearing away of the timber in the fly-belts, allowing the sun to shine there, is efficacious, because these flies wander only a few yards, at most, from the belts. The problem of mosquito destruction, as our honored President tells you, is a live one in the city from which we both hail. We want to make a mosquito survey, similar to that which was made by Dr. White and his associates in the far-famed yellow-fever times. The conditions have changed since that work was done, and I believe that the task of collecting carefully and patiently exact data, getting a foundation of facts from which to draw a deduction, will be of more benefit at the present stage of the problem than making a great many ingenious suggestions and hypotheses which have little basis in fact.

DR. JOSEPH COLDBERGER, Washington, D. C.: I think there is a great deal too marked a tendency, not only in entomology, but also in all of the branches of medical zoology, to a very broad, superficial study. The number of species and genera is appalling. The time has more than come when we need intensive study, rather than a superficial layer of poorly recorded facts. We need to know more about the life histories of the animal, and the way in which it breeds, lives, and has its being; and instead of rushing madly after new species, we should try to learn something more about those we know already.

DR. LUDLOW: So far as the study of flies is concerned, the study is surrounded with more difficulties than are usually recognized. The anopheles are especially shy, and many people insist that they have no anopheles in their vicinity, when more care

would show that they do have them. The question of whether one should name a new form depends upon several conditions. If you have a form that you cannot find described anywhere, you must describe it; but you may find it again, and you may not. That is why it is hard to base a classification on the male sex.

BACTEREMIC NATURE OF LEPROSY.

Dr. Damaso Rivas, Philadelphia: The work is based upon the fact that Bacillus Leprae are easily found in the blood of cases of leprosy. The method consists in collecting 0.1 to 1.0 cc. of the patient's blood, from the tip of the finger or toe (free from lepra lesions), or from the vein, in about 5 to 20. cc. of a 2% solution of acetic acid, in which the erythrocytes are dissolved. The mixture is centrifuged for about fifteen minutes and the sediment is examined for alcohol acid-fast bacilli. The method of staining is one usually followed in the examination for tubercle bacilli. The sediment is spread on a slide, dried, fixed, stained with carbol fuchsin, decolorized with 30% hydrocholoric-acid solution in 95% alcohol, and counterstained with methylene blue. In the original paper plates are given illustrating the Bacillus lepra found free in typical agrupation or scattered, as well as in the form of lepra cells; that is, endothelial cells or lymphocytes filled with the bacillus, also a few bacilli phagocytized by lymphocytes, are shown as evidences that the Bacillus lepra is found in the circulating blood. This method is advantageous in demonstrating the bacteremic nature of leprosy and also as a means of diagnosis of the disease.

EARLY DIAGNOSIS OF FILARIASIS.

Dr. Damaso Rivas, Philadelphia: This method is based upon finding the microfilaria in the blood in the early stage of the disease, that is, before the symptoms due to obstruction in the flow of the lymph, such as lymphangitis, elephantiasis, etc., are manifested. The procedure consists in collecting from 0.1 to 1.0 cc. of the blood, from the finger, in about 5 to 10 cc. of a 2% acetic acid solution, in which the erythrocytes are dissolved. After shaking, the mixture is centrifuged for about five minutes, and the sediment examined. Either fresh cover-glass, or dried and stained preparations, are made from the sediment. With the acetic acid method, it is immaterial at which hour of the day or night the examination is made. If the case is positive, the microfilaria will be found in the sediment. Four comparative tables are given in the original paper, and the advantage of the acetic acid method over the common fresh blood cover-glass preparation, as usually recommended, may be summarized as follows: (1) Microfilaria of F. nocturna or F. loa are found in the peripheral blood at all hours of the day or night. In cases of F. nocturna, of course, the greater number is found at night; while in F. loa, the greater number is found in the day. (2) The periodicity of microfilaria in the peripheral blood is related to the relative number of embryos circulating from the blood, and not to an absolute absence of them from the capillaries. (3) The acetic acid method is of special advantage in the early diagnosis of filariasis. By it, the microfilaria can be demonstrated in the blood as soon as the adult filaria reaches maturity and begins to discharge its embryos, which, in all probability, takes place years before the obstructive symptoms of filariasis are manifested.

Dr. Henry J. Nichols, Washington, D. C.: There should be a more careful investigation of tropical diseases. There has been too much tendency in this branch of research to tell some wonderful story about a disease not clearly known, except to a few. For instance, it is true that the filaria diurna are in the circulating blood in the daytime; but it is not true that they are not at night. For two or three months, I observed several cases of patients who were nightwatchmen; and at the end of this time their periodicity had not changed. They still had more filaria at night than in the day time. There is more need of careful observation on these points before a story is stated as a fact.

SUMMARY OF THE LITERATURE ON THE ETIOLOGY OF BERIBERI.

Dr. John M. Swan, Rochester: Having reviewed the literature of the etiology of beriberi, the author suggests the following definition: So far as our knowledge goes, beriberi is a disease of metabolism, characterized, pathologically, by a polyneuritis, and clinically by an acute stage resembling an acute infection, by a stage associated with marked edema, and by a stage of polyneuritis and paralysis, and due to a diet of which uncured rice forms the principal element.

INVESTIGATION OF LOUISIANA RICE WITH REFERENCE TO THE ETIOLOGY OF BERIBERI.

Dr. Creighton Wellman and Dr. C. C. Bass, of New Orleans, La.

Dr. Creighton Wellman: With the purpose of determining whether or not the experimental results obtained by various writers with the polished rice of the Orient could also be obtained with rice grown in Louisiana, the authors have undertaken a series of experiments with chickens, which are still in progress and of which the following is an account: The best culled Louisiana white rice was obtained at the mill after chaff had been removed, and was designated as unpolished rice. Another sample of the same lot was obtained after culling and finishing ready for the market, except that the final coat of glucose and talcum had not been applied. Only rice used in Louisiana and milled there was studied. Marked nerve symptoms appeared after 17 to 23 days in fowls fed exclusively upon polished Louisiana rice. The same rice unpolished does not produce the disease, and such rice with a general diet promptly cures the disease. A diet of pure cane sugar will produce this characteristic more rapidly and completely than the polished rice. Pure corn starch will also produce the condition rather more slowly than polished rice.

(To be continued.)

New Medical School.—The new medical department of the University of Illinois was opened last week by the presentation of a building from the College of Physicians.

Book Reviews.

The Practice of Gynecology. A Text-book for Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth edition, thoroughly revised. Octavo of 1100 pages, with 1050 original line drawings. Philadelphia and London: W. B. Saunders Company. 1912.

In the preface to the fifth edition of Ashton's Text-book on the Practice of Gynecology, the author expresses his gratification that since 1905, when the first edition appeared, there have been necessary five large editions and five reprintings. It is interesting to enquire into the cause of the popularity of this work of over one thousand pages on a subject which was said some years ago to be "passing" as a specialty. The fundamental idea of the book is "to take nothing for granted in describing diseases and their treatment." But Gynecology is a specialty and should take much for granted. Does not the very demand for such a book make one pause to consider whether the need may not indicate a phase of American medical education not altogether creditable to our methods of teaching medicine? However, there was the need, met frankly, and, judging from the sale of the book, with a considerable degree of success.

There is covered a wide range of topics treated comprehensively, yet concisely. Multiplicity of procedures is omitted in favor of one well recognized and trustworthy method. Each subject is taken up thoroughly and systematically, a commendable method, for scarcely too much effort can be expended in drilling into the mind of the medical student that system is one of the keys to knowledge. An effort is made to leave out nothing which will be of value and the subject is thus extended to include hygiene and dietetics, as well as all forms of non-operative treatment. There are abundant clear line drawings which give an excellent idea of the conditions portrayed.

In a work of this extent, among many points for favorable comment are some which call for unfavorable criticism. The book "endeavors to meet the requirements of practical men"; perhaps this explains its weakness from the point of view of the pathological laboratory, exemplified on page 293 by the terms "epithelial" and "spheroidal" cancer. There is a fondness for irrigation with corrosive sublimate solution, one to two thousands, in many conditions; in the uterine cavity, for example, it is not generally recommended. If the irrigations are to be followed promptly by normal saline, as is advised, they may just about as well be omitted, as the unprotected cells of the body are perhaps even more sensitive to corrosive sublimate than are bacteria. While tuberculosis of the bladder and ureter are discussed, nothing is said of tuberculosis of the kidney which is the essential lesion in the disease, and may be as properly discussed here as movable kidney, to which a chapter is devoted

Numerous minor defects show the difficulty of carrying out a design which is as ambitious as is the author's and there are at least two respects in which the value of the book might be enhanced. The first is the order in which the topics are taken up. Reading the headings of the chapters in the table of contents suggests some obvious changes, for no logical or other principle is evident as being applied throughout. The chapter on antisepsis in hospitals and that on antisepsis in private houses are separated by two chapters on technic, while a third chapter on technic is introduced later. The second respect in which the book might be improved is by a list of references. An exhaustive bibliography would be unwise, but gynecology is a growing science and there are many live problems urgently demanding solution. Some of these problems are finding solution and new contributions are made constantly. To bring the student into direct contact with this fact may be impossible as yet, but a judiciously selected list of references to the literature might do much to make him aware of its existence and modify his point of view accordingly. The many excellences of this edition indicate that it will receive the hearty welcome accorded its predecessors.

Tuberculin in Diagnosis and Treatment. By LOUIS HAMMAN and SAMUEL WALDMAN, Johns Hopkins Medical School, Baltimore. New York: D. Appleton and Company. 1912.

It is a pleasure to review such a book as this, coming from men who, although belonging to the younger generation of physicians, have had wide experience in their particular line of work at the Phipps Dispensary in Baltimore. Did this book accomplish nothing more than a careful resumé and study of the voluminous literature on the subject up to date, it would be a most valuable piece of work. In addition to this, however, the literature is carefully and logically arranged, and each chapter is summarized in a way which makes this very difficult subject far easier than otherwise would be the case.

In the preface the writers state that the book is intended primarily for physicians interested in medicine generally, and for students rather than for tuberculosis specialists. The reviewer would rather take exception to this statement. The book is such a careful and elaborate review of the important contributions to the subject that the average general practitioner will find it far beyond his depth, and were he going to start on the study of tuberculin would need some more elementary volume than this seems to be.

Chapter I is a detailed discussion of the tuberculin reaction, its nature and specificity, and the allied topics of tuberculin hyper-sensitiveness, insensitiveness and immunity.

Chapter II takes up the use of tuberculin in diagnosis, giving the details of administration, preparation, choice of tuberculins, and the various tests. It is a little surprising to find that the writers put so much faith in and still cling to the conjunctival reaction. The reviewer cannot but feel that this test is gradually being discarded as unnecessary and dangerous. He would also feel that the dangers of tuberculin in diagnosis as well as treatment in the hands of general practitioners and others unskilled in its use, are hardly emphasized enough.

Chapter III takes up the use of tuberculin in treatment, giving elaborate account of the work done and results obtained in the use of tuberculin in practically every form of tuberculosis, pulmonary and otherwise. The methods of administration are discussed at length, perhaps too much attention being given to methods of treatment which have been found of little or no value, such as giving tuberculin by mouth or rectum, or by intra-bronchial insufflation. In this chapter and the last, page after page is devoted to charts, which will probably be very little studied; likewise many pages are devoted to case records which could be omitted or summarized with advantage to the book.

On page 17 there is an annoying error which renders an illustrative chart practically useless. On page 19 one finds with surprise a remarkable split infinitive, "to consequentially apply"; while on the top of page 13 is a gross typographical error. One meets here and there certain colloquialisms which seem out of place in this book's otherwise strictly scientific atmosphere.

Despite these minor points, however, this volume is a welcome addition and will prove of the greatest help to anyone who wishes to find the latest and best opinions concerning the subject of tuberculin.

Diseases of the Mouth, for Physicians, Dentists, Medical and Dental Students. By Prof. Dr. F. Zinsser, Director of the Department of Dermatology, at the City Hospital, Lindenburg, etc. Translated and edited by John Bethume Stein, M.D., Professor of Physiology at the New York College of Dentistry, etc., with 52 colored and 21 black and white illustrations. New York: Rebman Company.

This is a handsome book, the object of which is to describe or teach the diagnosis of syphilis and similar diseases of the mouth with the aid of illustrative cases. The first half contains about seventy pages of text, in which the different stages and lesions of syphilis, especially of the mouth, are briefly described, together with other lesions in which differential diagnosis is important. The compilation, arrangement and printing are excellent, and the value of the descriptions much increased by reference to the second half of the book, which consists of about fifty colored plates, illustrating the more typical lesions. Half of these plates show different syphilitic, and the other half different non-syphilitic eruptions of the lips, tongue and fauces. Among the latter may be mentioned, Stomatitis, due to drugs or infection, different eruptive diseases of the mucous membrane, Vincent's Angina, Geographical Tongue, Leucoplakia, Tuberculosis, Lupus and Cancer. There are also a few black and white illustrations of syphilitic teeth and different forms of spirochetae. These plates are well adapted not only to supplement clinical instruction, but also to use in a reflectoscope for illustrating a lecture.

A Laboratory Handbook for Dietetics. By Mary Swartz Rose, Ph.D. Assistant Professor, Department of Nutrition, Teachers College, Columbia University. pp. 127. New York: The MacMillan Company. 1912.

Although primarily designed to facilitate the work of the teacher and student in the Dietetic Laboratory, this little manual of 127 pages will also find a useful place in the armamentarium of the general practitioner. It does not aim to be a treatise upon the subject of nutrition but it puts in easily accessible form the explanations involved in the calculation of food values and food requirements, and a consultation of its twenty-one reference tables will minimize the labor involved in the construction of dietaries without limiting dietary study to a few food materials. Thus beside being a handbook for the student it also serves as a guide to the physician and nurse in the practical preparation of the particular diet which is theoretically indicated. An admirable index enhances the value of the work.

The Vanishing Man. A Detective Romance. By R. Austin Freeman. Dodd, Mead and Company. 1912.

If the merit of a book of this character is to be estimated by its originality this volume should take a high place. As a matter of fact it is an ingenious and on the whole successful attempt to weave into a story of mystery certain of the modern conceptions of medicine, particularly with relation to the use of the x-ray. The central conception is worthy on the whole of a more adequate setting. One expects in a story of this sort rapidity of movement. This the author fails to attain and one's interest flags until the final outcome is reached.

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THE CASE OF THE MIDWIFE

AMONG current legislative matters affecting medical practice and the public health, is a measure (House No. 678) now pending before the General Court of Massachusetts, "to require the registration of midwives by cities and towns." This bill has so important a bearing, perhaps not generally realized, on the conditions of obstetrics and on the consequent welfare of the community, that it seems to deserve extended consideration. The text of the midwives' bill is as follows:—

"SECTION 1. It shall be unlawful for any person to carry on or in any manner to engage in the profession or practice of midwifery in this Commonwealth without first becoming registered with the city or town clerk in which city or town said person intends to carry on or engage in said profession or practice.

"SECTION 2. Said registration shall consist of the full name of such person, his home address, and the address of his office or place of business, if any, and such additional facts as the city or town clerk shall deem necessary for the fulfilment of this act.

"SECTION 3. (Provides penalties for violation of the Act.)

"SECTION 4. This Act shall take effect upon its passage."

Superficially, this Act may seem simple, even trivial in its purport. In reality it involves far-reaching and important consequences; for it involves the official recognition, in this State, of midwives as an institution. In another part of this week's issue of the JOURNAL, we publish two important articles, by Dr. Cody and Dr. Huntington, presenting impartially opposite aspects of this question, and to them we would refer our readers for information and discussion. Incidentally it may be noted that the bill is opposed by the State Board of Registration in Medicine, by the Massachusetts Commission for the Blind, by the Boston Board of Health, by the Instructive District Nursing Association, and by the American Association for the Study and Prevention of Infant Mortality.

It would seem that this measure is as undesirable as the midwife whom it aims to license. If the midwife is a desirable factor in medical practice, her recognition involves the responsibility for her training and supervision. This in itself would mean the establishment of a dual standard of efficiency in obstetrics, a thing recognized in no other department of medicine. What is needed by the community is not recognition and education of the midwife, but her abolition through the better obstetric education of the medical student.

As a matter of fact, the passage of the midwives' bill would essentially nullify the existing law which, by a decision of the Supreme Court of Massachusetts, has made the professional midwife a law-breaker whenever she engages in practice. Some of those who favor the bill admit that the midwife is an undesirable, but argue that, being an inevitable evil, she should be licensed in order to limit the harm she may do. This principle, however, of recognizing an evil by license for the purpose of keeping it within bounds, has proved essentially fallacious in attempts to deal with prostitution. There is no place in the world for half-way measures. If an evil cannot be at once eradicated, it should still be fought, not compromised with by its recognition as an unavoidable necessity.

It seems that many of those who defend the midwife assume and believe that as an institution she has been efficient and satisfactory in European countries, where her activities are regulated by license and supervision. On the contrary, this is apparently not always the case, as is evidenced by data cited in Dr. Huntington's article. In addition to the references which he has given, may be quoted in part the following letter from a correspondent of the *Medical Press and Circular*, in its issue for Nov. 6, 1912:—

"Attention to a parturient woman is one of the most ancient branches of the practice of medicine, and probably owing to its antiquity, still shows a marked example of the survival of the unfit. Obstetrics nowadays, in the hands of competent practitioners, is on a scientific plane, parallel with any other of the healing arts. Unfortunately only a small part of the practice is

in the hands of these men. The rest is carried out more or less successfully by midwives, who cannot pretend to the preliminary education and high technical skill that is universally admitted to be absolutely requisite for the efficiency of any branch of the practice of medicine. This duplication of practice is radically wrong; from a misplaced excuse of expediency we have deliberately adopted a standard we know to be ineffective. To argue that a midwife is competent to deal with a large proportion of cases is analogous to encouraging a pharmacist to prescribe for minor ills, and to call in a physician only when the case is obviously beyond him. In an event which civilization has reduced from a physiological function to something not far from a pathological condition, it is illogical to have an untrained—or worse, a half trained—individual to bear the responsibility of two lives, and only to hand the case over to one able to deal with it when often it is too late. The proper treatment of the midwife is not to educate, but to eliminate her."

The practitioner who wrote these lines had learned from personal experience the evils of the licensed midwife. It would seem wiser for our community to profit by such experience, than deliberately to introduce a system which even temporarily tolerates that which it secretly recognizes as evil and seeks ultimately to destroy.

FISHES IN MEDICINE.

The fish has in all ages been held in some manner sacred, as indeed have most other animals, at some period of history, with the exception of the hog. Many ancient religions included the fish in their mystic symbolism, and a medical significance seems to have been attached to it as early as in the days of Aesculapius. It also became a Christian symbol, partly on account of its association with one of the miracles, partly because of the curious acrostic by which its Greek equivalent, ΙΧΘΥΣ, forms the initials of the name and titles of the Saviour. Lecky, in his "European Morals" (I, 400), tells us that the word "contains also the initial letters of some prophetic lines ascribed to the Sybil of Erythra." Even in our own day and community, the sacred codfish is a familiar symbol, though associated less with sanctity than with the maritime past of Massachusetts Bay Colony.

In medicine the fish has given its Greek name to ichthyosis, that uncanny scaling affection of the skin, which the Germans know by the delightful term of Fischschuppenauschlag. But in materia medica terms of piscine derivation are much more often to be met than in pathology.

First of all, there is ichthyol, a transparent yellow-brown oil, of sea-green fluorescence, the ammonia salt of a sulphonic acid, prepared by distillation from a bituminous shale found in the Cambrian strata of the Tyrol and containing the remains of many fossil fishes. This valuable drug was first introduced into dermatologic practice by Unna in 1882, and has since been adopted as well by gynecologists.

Next there is ichthyocolla, or fish-glue, the isinglass of commerce, a gelatinous substance prepared from the dried swimming-bladders of *Acipenser huso* and several other species of sturgeon. By pharmacists it is dissolved in a mixture of water, alcohol, and glycerine, and when painted on taffeta constitutes court plaster, an agent once much more commonly employed by surgeons than nowadays.

Of Latin derivation is piscidia, the Jamaica dogwood, whose leaves, twigs, and bark are used by the natives to poison or stupefy fish, and thereby facilitate their capture. The root-bark has been employed therapeutically in the form of a fluid extract, as a narcotic, diaphoretic, and laxative, being recommended especially in neuralgia, insomnia, and whooping-cough. The tincture has been used for odontalgia. Its active principle is piscidin, whose pharmacologic action is to paralyze the sensory ganglia of the spinal nerves, excite the motor centres in the cord, and depress the heart.

Last, and by far most important, is the honest English derivative, cod-liver-oil, a familiar and valuable domestic remedy, used by the fisherfolk of the North Sea long before its introduction into medicine early in the nineteenth century. It is a pale, thin, yellow, fixed oil, with a unique flavor, extracted from the fresh livers of *Gadus morrhua* and several other species of cod. It contains traces of iodine, bromine, phosphorus, and cholesterin; but its undoubted therapeutic efficacy is probably due not to these but to its character as an easily assimilable animal fat.

It is not in the departments of pathology and materia medica alone, however, that the fish is of interest to physicians. As an article of diet, fish is a valuable, though unfortunately much neglected, substitute for meat, and should be more extensively employed to this end at other than Lenten seasons. It has been alleged that a fish-diet predisposes to leprosy, but bacteriology and hygiene seem satisfactorily to have refuted this fallacy.

Morphologically, too, the fish is of medical

interest, for it represents a completed evolutionary type, most perfectly adapted to the conditions of submerged animal life in normal saline. Geologically the fish first appeared in paleozoic time, immediately demonstrated its fitness for survival, persisted till the course of progress led upward through amphibians and reptiles to air and the dry land, and remains still the primate of pelagic creatures. The whale, a poor sidetracked mammal, is but a sorry mass of cumbersomeness beside his lithe, elegant cousins, who poise and dart as exquisitely in the water as a bird in the ocean of atmosphere. Embryologically, too, the fish bears testimony of kinship to us,—for the branchial clefts with which every human being is prenatally provided, and which sometimes persist as inconvenient malformations of the neck, are but repetitions of the gills which we have discarded for lungs, one of Nature's many reminders that each of us repeats in more or less syncopated form the biologic evolutionary experience, not of the race alone, but of all animate existence.

There are few pastimes more pleasurable or profitable to a physician than the cultivation and study of fishes. Whether in a tank indoors or in a pond afield, one can to much advantage observe their form, movements and habits of feeding. This is instructive, and good training as well. For what average man, or physician for that matter, previously unschooled, can tell offhand, how many fins a fish has, or how they are disposed and used. One may well keep fishes a six-month before noticing that when they swim they spread the segments of their forked tail as a human swimmer does his legs; or that their eyes not only have no lids, but are even devoid of the nictitating membrane with which birds are provided. Such observations, when first made, bring home the cogency of Agassiz' oft reiterated injunction, "Look at your fish."

For indoor study the goldfish is almost the only available genus, but outdoors one may find many others, especially if a follower of Sir Izaak. A good aquarium, too, such as that opened last fall in South Boston, is a great advantage, for here one may see fish from a new standpoint. In their tanks, behind heavy plate-glass, one looks at them from below, as it were from their own medium, watching their exquisite, delicate, yet vigorous movements and marvelling at the ease of the mechanism by which they rise or sink, apparently without effort, to any desired level. Blessed of all animals, too, the fish, though keen of hearing, is silent. This, and their innocence, seem especially to have impressed John Donne, the poet who has given us perhaps the best descriptive phrase in literature about the fish. Viewed from the vantage point of the air, the fish is indeed a wonderful and mysterious creature. But only when one thus half enters the fish's world, and regards him from the imaginative standpoint of a common denizen of the same medium, does one appreciate fully the felicity in Donne's description of

"The deep
Where harmless fish monastic silence keep."

THE CENTENNIAL OF DR. DAVID LIVINGSTONE.

ON March 19, 1913, occurred the one hundredth anniversary of the birth of David Livingstone. The preceding Sunday, March 16, was generally observed in honor of this event throughout Great Britain. The following Sunday has been set apart in various churches of America for memorial services. Dr. Livingstone's prominence as a physician, which is attested by his scientific studies of African diseases, and which was recognized when the faculty of physicians and surgeons of Glasgow elected "that worthy eminent and learned surgeon and naturalist, David Livingstone, LL.D., to be an Honorary Fellow," is somewhat obscured by his reputation in other directions. The plain slab of stone that marks his resting place in the central aisle of Westminster Abbey, indeed, says merely, "Here Rests David Livingstone, Missionary, Traveller, Philanthropist." Yet this plain slab is visited by every physician who enters the Abbey, and no one can read the full inscription on that tomb, nor recall the picture of the lean, brown, worn figure who left England for his last return to Africa, from which there was no home-coming, without a thrill of pride that the medical profession contributed to the world's roll of heroes, this name which stands so near the top of that roll. The tomb is also the goal of journeys by scientific men, philanthropists, statesmen, travelers, students of geography, geology, astronomy and zoology, and Christian missionaries, for to all these groups David Livingstone belongs.

The expedition headed by Stanley, which rescued the body of Livingstone from oblivion, was

one of the dramatic incidents of its decade, and many of our readers will remember the thrilling story of the finding of Livingstone, dead, kneeling alone in the heart of Africa in his desolate tent, as he had knelt in life. No man ever lived and breathed in his religion more fully than Livingstone, and he was known through all the heart of the dark continent as "the man who loves the black man"; for his ideal of missionary work was not to preach any formal doctrine, but to live simply, day by day, what he believed to be the life that was most like that of Christ.

A few times in its history *Punch* has dropped his merry mask and printed serious verse. At the time of Livingstone's burial in Westminster Abbey *Punch* printed these verses:—

"Droop half-mast colors, bow, bare-headed crowds,
As this plain coffin o'er the side is slung,
To pass by woods of masts and rat-lined shrouds,
As erst by Afric's trunks, liana-hung.

"'Tis the last mile of many thousands trod
With failing strength, but never-failing will,
By the worn frame, now at its rest with God,
That never rested from its fight with ill.

"Open the Abbey doors and bear him in
To sleep with king and statesman, chief and sage,
The missionary come of weaver-kin,
But great by work that brooks no lower wage.

"He needs no epitaph to guard a name
Which men shall prize while worthy work is known;
He lived and died for good—be that his fame;
Let marble crumble: this is Living-stone!"

MEDICAL NOTES.

Tuberculosis Sanatorium in China.—The following letter of appeal was published recently in the daily press:—

"The sum of $3000 is asked for, to establish a tuberculosis sanatorium in the province of Shantung, China, one of the most thickly settled portions of Central China. The people are desperately poor and suffer greatly from tuberculosis. Thirty per cent. of the cases in some of the mission hospitals are sufferers from this disease, and nearly every school of any size pays an annual tribute in the shape of one or more bright young students sent home to die from tuberculosis. So far as now known there is no public institution in China designed solely for the treatment of tuberculosis.

"A plan for such a sanatorium, situated at Tsinanfu, the capital of the province of Shantung, has been approved by the English and American missions, which have united for medical education, and also by the council of the Shantung Christian University. Such an institution would have an enormous value as an object lesson in the treatment of tuberculosis, as well as helping to conserve the results of educational and other forms of missionary work. This appeal is made to all who are interested in stamping out tuberculosis wherever it exists, as well as to those who may wish to aid these poor natives of China who possess so many worthy traits of character.

"Contributions may be sent to Dr. Charles K. Roys, physician of the hospital in Shantung, care of the Presbyterian Board of Foreign Missions, 156 Fifth Avenue, N. Y., or to the undersigned.

"Edward O. Otis, M.D.

"381 Beacon Street."

Illness of the Czar's Daughter.—Report from St. Petersburg on March 11 states that the grand duchess Tatiana, second daughter to the Emperor Nicholas, Czar of Russia, is ill with typhoid fever at Tsarskoe-Selo.

Two German Medical Congresses.—Two important medical congresses will be convened during the coming week at Berlin.

The forty-second congress of the German Surgical Association will be held from March 26 to 29, inclusive. The total membership of this Association is 2179.

"Some of the chief papers to be submitted will be Duodenal Ulcer, by Herr Küttner (Breslau); Brain and Spinal Surgery, by Herr von Eiselsberg and Herr Ranzi (Vienna); and the Treatment of Joint and Bone Tuberculosis, by Herr Garrè (Bonn). The president for the year 1913 is Dr. O. von Angerer, München-Harlaching (Willroiderstrasse, 8), and the treasurer is Herr Melzer, Langenbeckhaus, Ziegelstrasse, 10 and 11, Berlin, N. 24.

"The fourth Congress of Physiotherapy will be held at Berlin, March 26-30, 1913, under the presidency of Professor His. The principal subject proposed for discussion is the treatment of disturbances of the circulation. The work of the congress will be divided among four sections: (1) hydrotherapy, balneology, seaside and climatic treatment; (2) electro-therapy and radium-therapy; (3) orthopedics, movement treatment and massage; (4) dietetics. There will be an exhibition in connection with the congress."

Two Centenarians.—Mrs. Polly Trinkle, who died on March 11 at Bristol, Tenn., was said to have been born in 1810.

Thomas Sullivan, of Williams Bay, Wis., is said to have been born on March 10, 1801. He recently celebrated his birthday by going in swimming.

A WESTERN GANG OF OPIUM SMUGGLERS.—Report from Portland, Ore., on March 8, states that on Feb. 7 the leader of an extensive American gang of opium smugglers was arrested at Honolulu, Hawaii, with $75,000 worth of the drug in his possession. Three other members of the gang have recently been arrested in Portland.

BOSTON AND NEW ENGLAND.

A CASE OF LEPROSY IN BOSTON.—A probable case of leprosy was discovered in Boston last week in the person of a Chinaman, Wong Clang, who migrated to the United States in 1904, and who has lived in this city for the past year, serving as a waiter in a Chinese restaurant. The patient, who is about 40 years of age, has been isolated.

MEASLES IN LAWRENCE.—The epidemic of measles at Lawrence, Mass., noted in a recent issue of the JOURNAL, continues unabated. Up to March 8, over 650 cases had occurred in the city since Jan. 1, fifteen new cases being reported on March 7.

SEIZURE OF OPIUM AT LOWELL.—United States customs inspectors last week seized six opium smoking outfits and over $1000 worth of the drug, crude and prepared, at the general merchandise shop of a Chinaman, Chin Ting, in Lowell, Mass. The culprit has been held in $500 bail.

RECENT MEDICAL BEQUESTS.—The will of the late Katharine C. Pierce, of Boston, who died in Algiers on March 2, was filed last week in the Suffolk probate court. Among numerous charitable legacies, it contains a bequest of $10,000 for the endowment of the Harvard Dental School, and bequests of $5000 each to the Hospital Cottages for Children at Baldwinsville, Mass., the Convalescent Home of the Children's Hospital, Boston, and the Perkins Institution and Massachusetts School for the Blind.

The will of the late Mr. C. C. Weld, of Newport, R. I., contains bequests of $125,000 to the Boston Lying-in Hospital, and $100,000 to the Boston Dispensary. It also provides that, if the daughter of the decedent dies without issue, one-half of the residuary estate, now valued at nearly $4,000,000, shall revert to the Massachusetts General Hospital.

OFFICERS OF DENTAL HOSPITAL ASSOCIATION.—At a meeting of the Metropolitan Dental Hospital Association, held last week in Boston, Dr. J. G. W. Werner was elected president, and Dr. Georgina Crosby secretary and treasurer for the ensuing year.

ELLIS MILK BILL.—At the final hearing in Boston last week, before the joint committee of the legislature on public health and agriculture, in regard to the Ellis milk bill, Mr. Myron E. Pierce summed up as follows the case for the advocates of the bill:—

"The consumers of the state ask you to give them reasonable protection from the dangers which come from the careless handling of milk, not only on the farm, but at every stage in the course of its distribution to the consumers. It is for this committee to decide whether the public shall have this reasonable protection to which they are entitled. The responsibility resting upon each member of this committee is a very grave one. Upon your decision and the decision of your colleagues depend the lives and health of many children and adults. No doubt there are many other causes for our high infant mortality, but a portion of this unnecessary mortality is unquestionably due to the careless handling of milk. Wherever an attempt has been made to safeguard the milk supply there has been an immediate reduction in the infant mortality.

"The system of inspection provided for in the Ellis bill is certainly a reasonable one. The framers of the bill have gone out of their way to make it absolutely fair to producers. In many States of the Union the State Board of Health itself now has the power, which our State Board of Health does not have, to pass these regulations and to correct unsanitary conditions. In our bill the producers have a voice in the framing of the regulations and the Governor and Council have an absolute veto on every regulation to be enforced under the bill. It is, therefore, impossible to ask anything of producers under the Ellis bill which will increase the expense of making milk or which will in any way in itself increase the price of milk, although other economic factors may do so.

"If the leaders of the Grange, who are opposing this measure, were wide-awake, modern business men they would recognize the tremendous advertising value to the milk business of a law like the Ellis bill, if it were placed on the statute books, and they would be its warmest supporters. They could then advertise the system of inspection under the Ellis bill as practically guaranteeing the safety of the milk. This would bring to them the confidence of the consuming public in their product and would sell for them three or four times as much milk as they are selling now, thus greatly increasing the profits of the producers."

Improvement in School Hygiene.—A recent report by Dr. Thomas F. Harrington, director of school hygiene in Boston, indicates that there are 1723 fewer pupils with visual defects this year than last, 4325 more with normal vision, and 7484 more with normal hearing.

Wesson Maternity Hospital.—Report from Springfield, Mass., states that on March 5 the number of babies that have been born at the Wesson Maternity Hospital in that city reached a total of 2065. Of these births, 123 have occurred since Jan. 1 of this year.

State Tuberculosis Conference in Holyoke.—The fifth annual session of the Massachusetts State Conference on Tuberculosis will be held in Holyoke, Saturday, March 22.

The session beginning at 11 o'clock will be held in the hall of the Public Library. After introductory remarks by the chairman of the local committee, Dr. Carl A. Allen, the conference will be taken in charge by the presiding officer, Rev. William B. Geoghegan of New Bedford.

The first paper will be on "Open Window School Rooms," by Dr. Allen G. Rice, president of the Springfield Association for the Prevention of Tuberculosis. This paper will be discussed by the Superintendent of Schools of Holyoke, Francis McSherry.

Dr. Ralph B. Ober of Springfield follows with a paper on "Education in Matters Pertaining to Good Hygiene.

At 1 p. m. a sixty-cent luncheon will be served at the rooms of the Young Women's Christian Association. This will give those attending the conference a chance to meet in an informal way workers from different parts of the State. Applications for the luncheon should be sent to the Secretary of the Conference.

The conference will convene again at 2.30 p.m., the first paper, "Efficient Boards of Health," being given by Robert N. Hoyt, lecturer on Public Health at the Massachusetts Institute of Technology, and agent for the Wellesley Board of Health. This subject will be discussed by Dr. J. J. Carroll of the Holyoke Board of Health.

"Control of the Careless and Incorrigible Consumptive" will be treated by the secretary of the State Board of Health, Dr. Mark W. Richardson. He will be followed by District Attorney C. T. Callahan of Holyoke, on the same subject.

Another very important topic which has been the subject of very little discussion will be treated in a paper entitled "The After-Care of Sanatorium Patients," by Dr. John B. Hawes, 2nd, of Boston, secretary, Trustees of Massachusetts Hospitals for Consumptives.

NEW YORK.

February Death-Rates.—The death-rate in the city during the month of February, although by no means high for the season of the year, was higher than for any month for a considerable period and also in excess of that for February of last year. According to the weekly reports of the Health Department, this was 16.59, as against 14.46 in January and 15.64 in February, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 3 in January to 4 in February; the weekly average from whooping-cough, from 5 to 6.25; from diphtheria and croup, from 27.25 to 38.75; from influenza, from 15.75 to 17.25; from pulmonary tuberculosis, from 170.75 to 190.25; from acute bronchitis, from 15.75 to 20.5; from pneumonia, from 167 to 191.25; from broncho-pneumonia, from 107 to 146.25; from diarrheal diseases under five years, from 31.75 to 33.25; from tuberculous meningitis, from 11 to 19; from cancer, from 79.5 to 88; from apoplexy and softening of the brain, from 18.5 to 24.5; from organic heart diseases, from 190 to 220.25; from Bright's disease and acute nephritis, from 125.24 to 139; and from puerperal diseases, from 13.25 to 17.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from scarlet-fever declined from 14.75 to 13.75; from epidemic cerebrospinal meningitis, from 5.25 to 2.75; from appendicitis and typhilitis, from 12 to 10.75; from hernia and intestinal obstruction, from 16.75 to 13; and from cirrhosis of the liver, from 23 to 18. During the week ending Feb. 15 the deaths reported from cancer reached the probably unprecedented number of 106.

Cancer Research Laboratory.—It is announced that the money has been secured for the erection of a laboratory at Columbia University for the prosecution of the work provided for by the George Crocker Special Research Fund. When the accounting was made in November last

by the executors of the Crocker estate the fund amounted to $1,566,635. The will provided, however, that this should be used solely for research work, and that no part of it should be spent in the erection of a building. While the income of the fund is to be employed primarily for cancer research, should future discoveries render this use of it unnecessary, it may be applied to research in any field.

TREATMENT OF TUBERCULOSIS BY DR. FRIEDMANN.—Failing to secure legal authorization to practice in New York, Dr. Friedmann did not open an office, as was announced, but on March 6, at the People's Hospital, on Second Avenue, he gave injections of his serum to three patients selected by him from a number presented for the purpose. One was a case of supposed tuberculosis of the knee-joint, in which the injection was made intravenously in the arm, and the other two of pulmonary tuberculosis, in which the injections were made intramuscularly in the thigh. Some fifty physicians were present, and they found considerable ground for criticism in his lack of aseptic precautions and manner of making the injections. On March 8, in the presence of thirty physicians, at a private office, he injected seventeen cases of pulmonary and joint tuberculosis. On March 3 the Treasury Department accepted the conditions imposed by Dr. Friedmann and agreed to have the Public Health Service make an investigation of his method, and on March 5 the City Health Department received specimens of his cultures for testing in its research laboratories. The following announcement has been made by the department: "The Commissioner wishes it to be understood directly that he is not in any way hindering any of Dr. Friedmann's efforts to prove the value of his preparation. He hopes, as do all bacteriologists, that Dr. Friedmann's estimate of it value is true. Dr. Lederle will do everything in his power to aid Dr. Friedmann to establish by fair tests any merit which his preparation may have."

HARVEY LECTURE.—The ninth lecture in the current series before the Harvey Society will be delivered on Saturday evening of this week, March 22, at the Academy of Medicine, by Professor Franz Knoop, of the University of Freiburg, Germany, on "Modern Problems of Nutrition."

REGISTRATION OF PHYSICIANS.—Report from Albany, N. Y., states that on March 11 a number of New York physicians appeared at a legislative hearing to oppose the McDaniels bill, which gives the Board of Regents power at any time to revoke a physician's license for unprofessional conduct.

"The bill defines as unprofessional conduct advertising cures for several diseases, announcing professional service free, wilfully betraying a professional secret, habitual drunkenness and addiction to drugs, the employment of a solicitor, and 'any act not consonant with good morals,' or which, in the judgment of the Board of Regents, is inimical to the medical profession."

The opponents object to legislating thus a code of ethics, declaring that it would afford easily an opportunity for calumnious persecution of reputable physicians.

Current Literature.

MEDICAL RECORD.

MARCH 1, 1913.

1. EINHORN, M. *Additional Remarks on Cardiospasm, and Idiopathic Dilatation of the Esophagus.*
2. BALLIN, M. J. *Tibial Bone Transplantation in the Postoperative Mastoid Wound.*
3. GOODHART, S. P. *Jung's Modification of the Freudian Theory of the Neuroses.*
4. PILCHER, J. T. *Postoperative Gastroenteric Paresis.*
5. COBURN, R. C. *Warming Anesthetic Vapors Neither Useless Nor Fallacious.*
6. *RYTINA, A G. *The Luetin Skin Test in the Diagnosis of Syphilis.*
7. DUNTON, W. R., JR. *Occupation as a Therapeutic Measure.*
8. GRIFFIN, E. H. *Teeth Growing in the Nasal Fossa.*

6. Rytina discusses the value of the luetin test in the diagnosis of syphilis. This test is entirely harmless, he says, although a little experience is needed in order to apply it properly and to interpret correctly mild forms of positive reactions. The test is generally negative in primary and secondary untreated cases, but positive in a large percentage of such cases receiving previous treatment; it is always positive in tertiary, latent and congenital syphilis, and in a large percentage of cases of parasyphilis. It is, therefore inferior to the Wassermann test for diagnosis, but more valuable for prognosis in primary and secondary syphilis, and superior for both in late syphilis and congenital syphilis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MARCH 1, 1913.

1. DERCUM, F. X. *Essential Features of Symptomatology and Prognosis in Dementia Praecox.*
2. BASSLER, A. *The Diagnostician.*
3. GARRISON, F. H. *The History of Blood-letting.*
4. KNAPP, M. I. *Newer Teachings of Diseases of the Gastrointestinal Canal.*
5. ROHDENBURG, G. L. *Family Incidence of Malignant Tumors.*

6. Spencer, H. U. *Otology from a Medical Point of View.*
7. Harrigan, A. H. *Intramural Abscess of the Puerperal Uterus.*
8. Goldstein, H. *Strangulated Hernia.*
9 *Markley, P. H. *Chorea.*

9. Markley reports a fatal case of Sydenham's chorea occurring during the puerperium, and reviews the literature of the so-called gestational form of this disease. Chorea minor is rare after puberty, and is coming to be regarded as an infection rather than a neurosis, although no organic lesion has ever been demonstrated in the nervous system. [L. D. C.]

The Journal of the American Medical Association.

March 8, 1913.

1. Chisholm, A. S. M. *Some Features of the Theory and Practice of Medicine During the Seventeenth Century.*
2. Wathen, W. H. *When is Operative Treatment Indicated in Chronic Dyspepsia?*
3. *Francine, A. P., and Hartz, H. J. *Results with Tuberculin (Dixon's) in Advanced Chronic Ambulatory Tuberculosis.*
4. *Levison, C. G. *Hemorrhage Controlled in Two Cases by Local Application of Horse-Serum.*
5. Cleaveland, S. A. *A Case of Poisoning by Lithium, Presenting Some New Features.*
6. Harris, R. H. *Report of a Case of Fecal Impaction in the Ileum for Fifty-three Days with Recovery.*
7. Verhoeff, F. H. *Treatment of Acute Dacryocystitis.*
8. Carter, W. W. *A Case Showing Restoration of the Entire Nose by Rhinoplasty and Bone Transplantation.*
9. McWilliams, C. A. *Rhinoplasty.*
10. McGlannan, A. *Intestinal Obstruction. A Clinical Study of One Hundred and Eighty-One Cases.*
11. Fishbein, M. *Illuminating Gas-Poisoning.*
12. Warner, A. R. *Dispensary Abuse and Its Elimination by Organization and the Application of Sociologic Methods.*
13. Nelson, R. M. *A Suggestion on Phenol and Ichthyol in External Otitis.*
14. Orr, T. G. *Two Cases of Tonsillectomy.*
15. Clapp, C. A. *Deafness Following the Use of Salvarsan.*

3. Francine and Hartz believe that Dixon's preparation of tuberculin is of mild potency and very safe to use. They describe the technic of preparation. Injections were given once a week. Eleven cases were treated. All but one were of the advanced chronic fibroid type. Every patient was distinctly improved by the treatment, the tubercle bacilli disappearing from the sputum in several cases while under treatment. The lungs showed decrease in râles. Reactions were uniformly mild. The authors strongly recommend this treatment.

4. Leveson cites two very interesting cases of hemorrhage, one from the urinary bladder and one from the gall bladder, in which transfusion and hypodermic injection of serum had failed, but in which horse serum poured directly into the wound stopped the bleeding immediately. [E. H. R.]

The Lancet.

February 8, 1913.

1. *McCarrison, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lectures III and IV.*
2. *Swan, R. H. J. *A Clinical Lecture on Tumors of the Kidney.*
3. *Harrington, A. W., and Kennedy, A. M. *Bone-Marrow Metastases and Anemia in Gastric Cancer.*
4. *Foulerton, A. G. R. *Some Observations on a Series of Seventy-eight Cases of Streptothrix Infection.*
5. Jones, D. W. C. *A Note on Remission in a Case of Epilepsy.*
6. Gray, S. *A Case of Osteomalacia.*
7. Sequeira, J. H. *Congenital Absence of Both Thumbs.*
8. Banister, J. B. *A Case of Acute Intestinal Obstruction Following Cesarean Section.*

1. In the third and fourth Milroy Lectures on goitre, McCarrison discusses the blood in goitre which is characterized by a considerable lymphocytosis. This is present in simple as well as in exophthalmic goitre. He then considers the pathologic changes which take place, summing them up as follows: The influences causing the goitre first stimulate the organ to increased activity, followed by damage to the secretory epithelium and later by degenerative changes. An enlarged goitre of this kind has always failed to show any traces of bacterial invasion. He believes that the thyroid gland in some way contributes to the body's anti-toxic and anti-bacterial forces. He considers various methods of treatment, notably that of thyroid, with which he has had marked success *curing* 68 out of 82 cases. He has given thyroid in doses up to 10 gr. t. i. d. With lactic acid bacilli in a few cases he has had good results. With vaccines made from colon and other organisms in the intestinal tract he has seen great improvement when used before degenerative changes have taken place. He then describes an elaborate investigation which at least suggests that certain amoebae found in the feces may be a causative agent; he confirms this view by experiments as a result of which he caused thyroid enlargement in goats by feeding them on water contaminated by feces of goitrous humans.

2. Swan briefly considers the various tumors of the kidney, as to symptoms and treatment.

3. The writers describe a case of gastric carcinoma associated with metastases in the bone marrow. In any case of grave anemia the presence of pains and tenderness of the bones should always arouse suspicion of bone marrow carcinoma. If the blood shows characteristics of pernicious anemia, but with an excess of erythroblasts and myelocytes, the diagnosis of metastasis in the bone marrow is still more probable.

4. Foulerton describes 78 cases of streptothrix infection, chiefly of the mouth, neck or lungs. He discusses these cases as to age, sex, occupation and sites of infection. These conditions, while comparatively rare, are of the greatest interest to physicians especially interested in pulmonary disorders, owing to the close resemblance of these infections to tuberculosis. [J. B. H.]

Berliner Klinische Wochenschrift.

No. 3. January 20, 1913.

1. Jones, H. L. *Progress in Electrotherapy.*
2. Tietze, A. *A Double Sided Resection or Single Sided Extirpation of the Thyroid?*
3. Hollaender, E. *A Third Method for Plastics on the Nose.*
4. Weichert, M. *Plastics on the Breast.*
5. Rake, G. *Surgery of the Lung Cavities.*
6. Rabinowitch, L. *Blood Findings in Tuberculosis.*
7. v. Czihlartz, E. *Nystagmus in Diseases with Fever.*
8. Burger, M., and Renner. *The Fat Chemistry of the Blood.*
9 Rabinowitch, M. *Protective Inoculation with Diluted Tubercle Bacilli.*

No. 4. JANUARY 27, 1913.

1. *VEIT, J. *Eclampsia and Its Treatment.*
2. LEVINE, C. *A Research Concerning the Biology of 1912.*
3. BOAS, I. *Method and Technic for Finding Blood in the Gastrointestinal Tract.*
4. BETKE. *Resection of Tubercular Bifurcated Lymph Nodes for Tracheal Stenosis.*
5. HORZ. *Transduodenal Liver Drainage.*
6. HARTTUNG, H. *Spontaneous Gangrene of the Index Finger, and Sympathetic Gangrene.*
7. NAGELSCHMIDT, F. *The Electrical Treatment of Obesity.*
8. PLESCH, J. *The Chemical Effects of Thorium-x on Organic Substances, Especially Uric Acid.*
9. SAALFELD, E. *The Use of Radium and Mesothorium in Skin Diseases.*
10. ALEXANDER, W., AND UNGER, E. *The Treatment of Severe Facial Neuralgia by Alcohol Injections of the Casserian Ganglion.*
11. TREITEL. *Clinical Experiences with Adamon in Acute Gonorrhea.*
12. SCHMIDT, G. *Changes in the Sanitary Arrangements of the German Army During the Year*

1. The author believes that the toxin causing eclampsia originates in the albumen in the periphery of the placenta. He believes that this conclusion is justifiable, considering the last work of Abderhalden on the serum diagnosis of pregnancy. He believes that as soon as the toxin is definitely found, an antidote will be forthcoming at once.

He then reviews the more modern ideas for the treatment of eclampsia, urging the rapid evacuation of the uterus if the toxemia continues to increase under treatment, and laying especial emphasis on the advantages of vaginal hysterotomy as a means to this end. He cites statistics showing that the use of narcotics alone for the control of the toxemia is not entirely efficacious, but believes that the use of morphia in fairly large doses may be combined with operative treatment to advantage. He further believes that bleeding is important if the blood pressure remains high. [J. B. S., JR.]

No. 5. FEBRUARY 3, 1913.

1. LAUDER, B. *Functional Diseases of the Arteries.*
2. HESS, W. R. *The Influence of the Blood Pressure on the Coefficient of Its Viscosity.*
3. HAHN, M., AND HEIN, R. *The Determination of Carbonic Acid Gas in the Alveolar Air by Means of the Interferometer.*
4. GLASER, H. *The Histology of the Blood in Severe Cases of Infantile Scorbutus.*
5. SEEFELDER, R. *Degenerative Diseases of the Cornea.*
6 SCHISCHLO, A. *The Cure of Pruritus by Means of Autogenous Vaccines.*
7 BECKEN, W. *The Dose of Medicines in Drop Form.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 28, 1913.

1. *V. BERGMANN, G. *Ulcus Pepticum Originating from Spasm.*
2. STURSBERG, H., AND SCHMIDT, H. *Measurements of Blood Pressure after Physical Exertion, and Their Significance as to Fitness for Work.*
3. STOFFEL, A. *Rational Surgery of Nerves.*
4. BRUEGEL, C. *Movements of the Diseased Stomach Studied by Roentgenological Methods.*
5. REICHMANN, V. *Acute Poisoning with Sulphuric Acid and Copper-Sulphate; the Blood.*
6. EICHMANN, E. *Toxicodemias of Pregnancy Cured with Ringer's Solution.*
7. HÖRTEL, E. *Salvarsan in Cholera Gravidarum.*
8. HERXHEIMER, K. *Note on My Paper "Cure of a Case of Sarcoma of the Skin with Thorium-x."*
9. WOLFF. *A New Simple Ray-lamp for Constant and Alternating Current.*
10. BUCKY, G. *A Combined Electrode and Irrigator for the Eye.*
11. SCHILLING, V. *The Question of the New Ross Development of the Organism of Syphilis.*
12. ESCH, J. *Demonstration of Tuberculosis by Hostine's Animal Test.*
13. MAREESCH, R. *The Lipoid-content of the So-called Carcinoma of the Appendix.*
14. VAN DEYCKE AND MUCH. *Tuberculin and Immunity to Tuberculosis. (Concluded.)*

1. The origin of peptic ulcer is traced by the writer to localized spasm with ischemia on the basis of hypersensitiveness of the autonomic system to stimuli of various kinds. He emphasizes the view that patients having ulcers show various neuroses as a general rule, and that the old belief that those having organic lesions in the stomach and duodenum do not have multiple neuroses, is an error. The neuroses can be grouped as originating from disturbance of the vagus or of the sympathetic system, the former generally predominating. The symptoms of ulcer, moreover can be explained on this theory, and during the attacks of pain spasm in the stomach or at the pylorus has been observed by x-ray. (The evidence adduced in favor of the theory above stated cannot be briefly summarized.) The logical conclusion is reached that atropine will relieve the symptoms, and the fact is stated that it does, and a systematic course of atropine is advised, not only as a palliative, but also as a curative measure. [G. C. S.]

No. 5. FEBRUARY 4, 1913.

1. V. HOFMEISTER. *Surgery of the Gall Ducts.*
2. *SAATHOFF, L. *Thyreosis and Tuberculosis.*
3. FLATOW AND BAÜNELL. *A Simple Clinical Method of Estimating Urobilinogen.*
4. LINDEMANN, W. *Simplification of Anaerobic Cultivation and a New Method of Cultivation.*
5. PLAUT, H. C. *Value of the Breudel-Müller Reaction.*
6. BEYER, W. *Diphtheria Bacilli in the Urine.*
7. KÜSTER, H. *Indications and Results of Abdominal Tampon Drainage.*
8. HEGAR, A. *Sterilization on Grounds of Race Hygiene.*
9. FEIBER. *Lithotripsia or Lithotomy?*
10. CHIARI, H. *Family Chondrodystrophia Fetalis.*
11. RIGLER. *Neubornyval.*
12. SCHIFF, E. *Distribution of Radium Preparations from Open Stations for the Treatment of Private Patients.*

2. Saathoff discusses the concurrence of tuberculosis and thyroidism, which has been observed by various writers, as well as the similarity of symptomotology which may obscure the diagnosis between them. He believes that tuberculosis is generally present in hyperthyroidism, that uncomplicated hyperthyroidism is free from fever, that closed tuberculosis is particularly common with hyperthyroidism, and that it has etiological importance. When phthisis is believed to be present, treatment of it in the usual way may cure both conditions, and in every case in which hyperthyroidism is suspected tuberculosis should be looked for. Surgery may be indicated in obstinate cases as a means of breaking the vicious circle. [G. C. S.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 2, 1913.

1. FOERSTER, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. I. Standing. (To be continued.)*

2. Bashford, E. F. *The Cancer Problem.* (*To be concluded.*)
3. *Ribbert, H. *Contribution on Rickets.*
4. *Schieck, F. *The Significance of Choked Disc.*
5. Denker, A. *The Technic and Applicability of Intercricothyrotomy.*
6. Hoffmann, E. *Duration of Contagiousness in Syphilis, and Permission for Marriage in the Light of Recent Research.*
7. Braun, H. *The Employment of Local Anesthesia for the Reposition of Subcutaneous Fractures and Dislocations.*
8. Lissauer, M. *Experimental Cirrhosis of the Liver after Chronic Alcohol Poisoning.*
9. Langbein, R. *Contribution to the Treatment of Sciatica with Epidural Injections.*
10. *Erlenmeyer, E. *The Blood Picture in Variola and in Vaccinia.*
11. Benedek, L., and Deák, S. *Differences Between the Blood Serum in Paralysis and in Dementia Praecox with Regard to the Extraction of Immune Hemolysins.*
12. Hering, W. *Perirenal Hematoma after Scarlet-Fever.*
13. Becker, J. *The Latest Attempts at Surgical Prophylaxis and Treatment of Diffuse Peritonitis.*
14. Hallé. *A Practical Antiphon.*
15. Gruff. *Representations of the Blind in Japanese Art.*

3. From the circumstance that in rickets necrotic cartilage cells are found in the cartilage from the medullary cavities, Ribbert concludes that the disease is produced by toxic influences, from metabolic disturbances following improper nutrition, acting upon the skeleton.

4. Schieck considers that choked disc arises by the pressing of the cerebrospinal fluid into the preformed perivascular lymph-spaces of the axillary strand in the optic nerve, and that the fluid producing the characteristic edema of the optic nerve sheath is fluid pressing forward along the central vessels.

10. Klimmerer has described the blood picture of variola as characterized by a great increase of lymphocytes. Erlenmeyer confirms this observation, but finds that in vaccinia there is no such increase. He believes, therefore, that blood examination may be employed for diagnosis in cases of suspected variola and in revaccinated persons. [R. M. G.]

No. 2. January 9, 1913.

1. Foerster, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. II. Walking.* (*To be Concluded.*)
2. Bashford, E. F. *The Cancer Problem.* (*Conclusion.*
3. Schmidt, M. B. *Calcium Metastasis and Calcium Gout.*
4. *Huntemüeller and Paderstein. *Finding of Chlamydozoa in Swimming-Pool Conjunctivitis.*
5. Conradi, H. *Typhoid Bacilli Carriers.*
6. *Port, F. *Hypertension and Blood Sugar.*
7. Ehrs, P. *Case of Operated Spinal Cord Tumor.*
8. Rimine, E. *The Influence of Salvarsan on the Organ of Hearing.*
9. Hartung, E. *Case of Paralytic Dementia and Childbirth.*
10. Meder. *Two Cases of Delayed Healing of Inoculation Pustules.*
11. Credé-Hörder, C. *Non-Gonorrheal Ophthalmoblennorrhea of the Newborn and of Infants.*
12. Pertirk, T. *Idostarin and Iodine Preparations in the Treatment of Phthisis.*

4. The authors have found typical chlamydozöid cell-inclusions, similar to those found in trachoma by Halberstädter and Provazek, in swimming-pool conjunctivitis, which they regard as an infectious disease capable of transmission to monkeys. They suggest that the condition may be an attenuated trachoma.

6. Port finds that an increase of the blood sugar content often, though not always, occurs in cases of nephritis complicated by uremic symptoms or apoplexy or eclampsia. If the blood-pressure is simultaneously elevated, however, it does not follow that adrenalinemia is necessarily the common cause of the hypertension and the hyperglycemia.

[R. M. G.]

No. 3. January 16, 1913.

1. Foerster, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. III. The Upper Extremity.* (*Conclusion.*)
2. Bruns, O. *The Blood Circulation in Breathing and in Atelectatic Lungs.*
3. Rabinowitsch, L. *Investigations on the Question of Tuberculosis.*
4. Behrendroth, E. *The Sexual Psychogenic Cardiac Neuroses, "Phrenocardia."*
5. Kulenkampff, D. *The Early Diagnosis of Acute Gastric Perforation.*
6. Wolfsohn, G. *A Modification of Staphylococcus Vaccine.*
7. Erlacher, P. *Causal and Symptomatic Treatment of Gonorrheal Processes in Man, with Special Reference to Menzer's Original Gonococcus Vaccine.*
8. Opitz, H. *Determination of Free Hydrochloric Acid in the Gastric Contents Without the Stomach-Tube.*
9. Loeb, S. *Hemicanities in Hemiplegia.*
10. Pfister, E. *Prostatic Elements in Urethrorrhea Libidinosa.*
11. Virchow, H. *A Preparation of the Heart Valve Curtains.*
12. Schlesinger, A. *Latent Erysipelas.*
13. Elsaesser. *Hot Air Inhalation.*
14. Hemmis, M. *The Present Status of Functional Renal Diagnosis.*
15. Schall, M. *Technical Novelties in the Domain of Medicine, Public Sanitation, and Care of the Sick.*
16. Gettkant. *Class Epidemics of Diphtheria.*

Wiener Klinische Wochenschrift.

No. 5. January 30, 1913.

1. Ollman, K. *The Question of the Parasitotropism and the Toxicity of Salvarsan* (*Neosalvarsan*).
2. Breus, C. *The Etiology and Genesis of Otto's Protrusion of the Acetabulum.*
3. Schwarz, G. *Direct Irrigo-Radioscopy of the Colon.*
4. Raumgartner, E. *Caries of the Teeth—a Streptomycosis.*
5. Pach, H. *A New Source of Industrial Eye Injury.*
6. *Brosch, A. *The Internal Treatment of Stenosis of the Large Intestine.*

6. The author discusses the methods of intestinal irrigation used in the treatment of stenosis of the large intestine. He cites a case showing the advantages to be derived from intestinal lavage. These are a lessening of the symptoms of obstruction, a reduction in the surrounding induration, together with a consequent improvement in general condition and gain in weight. The limitations of the present methods of lavage are discussed, and the need shown of a method by which the action of the intestinal lavage may be prolonged. [F. S. K.]

Deutsche Zeitschrift für Chirurgie.

Band 120. Heft 1-2. December, 1912.

1. Payr, E. *Lister's Death. An Appreciation of His Life-Work.*

2. FRITZSCHE, E. *Fractures of the Odontoid Process of the Axis.*

3. SIEVERS, R. *Transplantation of Pedunculated Skin Flaps from the Front of the Thorax to Finger Defects.*

4. *LANGE, E. *Static Hemorrhages Following Traumatic Loin Compression.*

5. MOLINEUS. *The End Result in Double Malleolar Fractures.*

6. BAYER, E. *A Tumor of the Gluteal Region with Peritheliomatoid Structure.*

7. RITTERSHAUS. *Cases of Heart Injuries.*

8. GÄRTNER. *Primary Lymphosarcoma of the Small Intestine.*

9. FRITZSCHE, E. *Additional Note on Fractures of the Odontoid Process of the Axis.*

10. ROUSSEAU, T. *Total Exarticulation of the Mandible and Its Prosthetic Repair.*

4. Lange reports from Payr's surgical clinic at Leipzig seven cases of severe crush of the trunk, and from a study of them and of the literature concludes that in such cases the increased intrathoracic and intraabdominal pressure produces in the large veins a back flow of blood, which is propagated in great measure toward the upper part of the body. The always constant distribution of the cutaneous ecchymoses near the base of the common facial vein proceeds from the latter's destitution of valves. When the reversed blood-stream reaches a great height, ordinarily functional valves may become inefficient, as in the subclavian vein and its branches. The relative rarity of intraocular blood-effusions, and the complete absence of cerebral hemorrhages, are due to the normally existing intraocular and intracranial tension, which are sufficient to counterbalance the retrograde blood-wave produced by the injury. [R. M. G.]

BAND 120. HEFT 3-4. JANUARY, 1913.

1. DE CORTES, A. *Alleged Orchitis of Effort, from the Pathologic, Clinical, and Legal Standpoint.*

2. DILGER, A. *Tissue Cultures in Vitro, with Especial Reference to the Tissues of Adult Animals.*

3. KEPPLER, W., AND BRESLAUER, F. *The Question of Intravenous Narcosis.*

4. KROH, F. *Contributions to the Anatomy and Pathology of Striated Muscle Fibers. (To be Continued.)*

5. *KRABBEL, M. *Tubercle Bacilli in the Circulating Blood of Surgical Tuberculates.*

6. *NOBE. *A Rare Case of Dislocation in the Calcaneo-Scaphoid Articulation.*

7. SAALMANN. *Case Contribution to the Knowledge of Spina Bifida.*

4. Kroh presents a useful series of experimental studies on the theory of ischemic muscle paralysis and muscle contracture.

5. Krabbel believes that in cases of suspected surgical tuberculosis, in which there is no clinically demonstrable pulmonary focus as a cause for bacillemia, the positive demonstration of tubercle bacilli in the blood is of great significance and importance for confirmation of the diagnosis.

6. Nobe reports, with excellent illustrative skiagrams, a case of this rare injury, of which he collects from the literature 11 other examples. [R. M. G.]

Obituary.

EDWARD ADRIAN WILSON, B.A., M.B., CANTAB.

DR. EDWARD ADRIAN WILSON, who in March, 1912, died at the post of duty with his comrades of the British National Antarctic Expedition, was born at Cheltenham, England, in 1872, the son of a physician. He was educated at Cheltenham College, whence in 1891 he entered Caius College, Cambridge. Here he won distinction as a scholar in natural science, receiving the degree of B.A. in 1894. He then entered St. George's Hospital Medical School, obtaining the degree of M.B. in 1900. In 1898, however, he had been found to have pulmonary tuberculosis; and though he apparently recovered under a careful regimen, it seemed wisest that he should relinquish his intention of engaging in the urban practice of his profession, and should pursue an outdoor life.

Accordingly in 1901, Wilson joined Captain Scott's first Antarctic expedition as surgeon and naturalist on the *Discovery*. His sterling manliness, great endurance, and high scientific ability caused him to be selected to accompany Scott and Shackleton on the final sledging-trip, which reached the farthest point south that had then been attained. From this expedition he brought back data of great value, particularly in his water-color sketches of Antarctic fauna and flora. On his return to London in 1904 he spent much time arranging and describing his collections in the British Natural History Museum, and in lecturing and publishing reports on topics connected with his observations and discoveries. In 1905 also he served on the departmental inquiry into the diseases of grouse, and in this important work evinced his habitual thoroughness and scientific acumen.

When Scott's second Antarctic expedition sailed in 1910, Wilson was again selected as surgeon and head of the scientific staff. On this expedition he made a special study of the development of the penguin chick, of the embryology of seals, and of the identification of certain varieties of whales. In the pursuit of these investigations he encountered incredible hardships, which he endured with fortitude, and through which he succeeded in securing valuable material which has been preserved for the enrichment of science. In November, 1911, he was one of sixteen selected to constitute the South Polar party, and was one of the four who accompanied Scott on the final successful dash to the pole. He died with his comrades on the return journey, as fearlessly and gallantly as he had lived.

Dr. Wilson was a man of ascetic purity of life, simple, honorable, straightforward, of intense energy, loyalty, and persistence, with a singularly charming and genial personality, an

artist as well as a man of science. It is matter for gratitude that such a man should have shared in Scott's final sacrifice, not only as a representative of our profession, but as a fine type of the high fitness and nobility of character bred in the intellectual pursuits of science. To the widow and father who survive him, to his native town, to his college, his hospital, his nation, and to the world, his memory will be more precious than it is sad; for he lived and died with his peers, an earnest Christian gentleman and hero, justifying the highest ideals by which human achievement is measured.

Correspondence.

POLISHED RICE vs. UNPOLISHED RICE.

Boston, March 7, 1913.

Mr. Editor: Lest certain facts relating to the preparation of rice for market may be unknown to your readers and because some grocers are still supplying polished rice to their customers even though unpolished rice is asked for, I beg to submit this communication.

The term "unpolished rice" is generally accepted by the medical profession as meaning rice which is "whole" or rice which has not been subjected to any milling process for removal of the mineral-bearing outer layer or pericarp.

Recent investigations, proving the value of this mineral-bearing portion in the maintenance of health, strength, and resistance to disease, are well known to the medical profession and have filtered through the press more or less to the general public; with the result that thoughtful people are asking for unpolished rice, and health boards are requiring that polished rice shall not be offered for sale.

Let us see how this works out. The method of milling rice for commerce, which has prevailed up to a recent date, is substantially as follows: The rice grains as they come from the threshing are put through a milling process which grinds off all the brownish outer layer until the grains show pure white. Then a coating consisting of glucose and talc is applied which makes a sort of varnish and in the further process of milling gives the grains a high lustre. In the language of the "trade" this last step of coating with talc and glucose is called "polishing." The first step whereby the grain is robbed of its "food salts" is lightly considered and the product is placed on the market as "unpolished rice."

What we get when we call upon our grocer for unpolished rice is exactly what we have heretofore received except that it has not the coating of glucose and talc. At the present time it is impossible to obtain in Boston any real unpolished rice because of the method above described which is practised by the dealers. This is not wholly the fault of the grocers, for plausible circulars are sent them by the rice producers throwing ridicule upon those who are "railing against unpolished rice," that "polished rice is obviously just the same as unpolished rice except that it hasn't the coating of glucose and talc and that these are harmless anyway" and "that the first process of milling takes away only insignificant quantities of protein, fat, and disfiguring coloring matter, making the product more digestible and much more pleasing to the eye."

Thus the influence of the producers and manufacturers is directed against the efforts of the medical profession to teach the world that in eating polished rice they are consuming material which consists of little more than rice starch—a food product which has been robbed of its valuable mineral elements and salts, which are the real life and health-givers and which furnish material for growth of bones, muscle, teeth, hair, nerves and brain, and maintain resistance to disease.

In Boston genuine unpolished rice may be obtained of S. S. Pierce & Co.: but to make sure of getting it, the buyer must ask for *Natural Yellow Rice.*

Truly yours,

Horace Packard, M.D.

WORKMEN'S COMPENSATION.

Lawrence, Mass., March 7, 1913.

Mr. Editor: The letter of Mr. Carroll, Chairman of the Industrial Accident Board, in your issue of March 6, clearly defines the attitude of the Board toward freedom of choice of medical attendance under the Workmen's Compensation Act.

Unless the insurance companies and the Industrial Accident Board develop a broad view, an almost intolerable condition will be created. Even with the broadest possible construing of such a law, when insurance against industrial disease is added, as it is likely to be, it is not conceivable the American spirit will consent to such a restriction of liberty. Either this restriction will be removed or the source of power transferred from purely commercial interests to the State.

The recently enacted Federal Compensation Act for the Panama Zone, while providing that the insurance company may furnish medical and hospital attendance, retains the employee's right to seek attendance elsewhere without forfeiting his claim. This act, I understand, is endorsed by the American Association for Labor Legislation as the best one yet enacted in America, and is expected to be a model for standardizing future state legislation. It distinctly recognizes the right of freedom of choice.

The following paragraph in Mr. Carroll's letter is significant for what it omits: "The Industrial Accident Board is doing its utmost to adjust this question of medical fees under the law in a manner which will be fair to the employers and insurance companies and at the same time be just and satisfactory to employees. . . "

With all the desire and solicitude that fairness and justice and satisfaction shall be rendered the employers, insurance companies and employees, the medical profession would seem to be entirely forgotten, or ignored.

Very truly yours,

W. H. Merrill, M.D.

THE EARLY RECOGNITION OF SYPHILITIC INFECTION OF THE WET NURSE.

Mr. Editor: It is not generally known at what an early date syphilitic infection of the wet nurse by a nursing child was recorded.

Janowsky in his most interesting monograph "La Femme Syphilitique et la Descendance" (1904), mentions the fact that Brassarotta in 1550 recorded a case of congenital syphilis where the infant infected its wet nurse.

This was ten years before the famous saying of Rondelet, professor at Montpelier, 1560, "Ego vidi puerum nasci totum coöpertum pustulis Morbi Gallici," and was only 57 years after the first cases of syphilis in the old world were supposed to have been treated by Diaz de Sala among Columbus' crew in 1493.

Very truly yours,

Wm. Pearce Coues, M.D.

Boston, March 10, 1913.

Miscellany.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, March 24, 1913, at 8.15 p. m.

Addresses: "Remarks on Dr. Hughlings Jackson and Certain of His Views," Dr. James J. Putnam. "The Rise of the Medical School of Salerno," (illustrated with lantern slides), Dr. Edward C. Streeter.

Members of the Suffolk District Medical Society are cordially invited to attend.

ROBERT M. GREEN, *Secretary.*

78 Marlborough Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-sixth meeting of the New England Pediatric Society will be held at the Boston Medical Library, at 8.15 p. m., on Saturday, March 29, 1913.

The following papers will be read:

1. The Use of Strychnin in Heart Failure and in Vaso Motor Insufficiency. A Preliminary Report. L. H. Newburgh, M.D., Boston.

2. Diabetes in Early Infancy. J. H. Mason Knox, M.D., Baltimore.

The members of the Suffolk District Medical Society are cordially invited.

Light refreshments will be served after the meeting.

FRITZ B. TALBOT, M.D., *Secretary.*
JAMES S. STONE, M.D., *President*

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, March 25, at 8 o'clock.

Business: The meeting will be devoted to a discussion of "The Workingmen's Compensation Act," as it affects the doctor.

The following gentlemen will address the Society: John C. Johnston, Esq., of the Suffolk Bar, Robert M. Merrick, M.D., of The Norfolk District Medical Society; Dudley M. Holman, Esq., of the Industrial Accident Board.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Ave., Dorchester.

[In view of the peculiar present importance of this subject, which has already been considered editorially in the JOURNAL, an abstract account of this meeting will be published in an early issue.—EDITOR.]

CHANGES IN THE U. S. NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending March 8, 1913.

HALLECH, J. D., acting assistant dental surgeon. Ordered to Receiving Ship at Mare Island, Cal.

MCCREARY, A. F., acting assistant dental surgeon. Ordered to Naval Training Station, San Francisco, Cal.

CRANDALL, J. W., acting assistant dental surgeon. Ordered to Receiving Ship at New York.

HEINER, R. G., passed assistant surgeon. Ordered to Guantanamo Naval Station, Cuba.

Irvine, W. L., assistant surgeon. Detached from Guantanamo Naval Station, Cuba, and ordered to *Connecticut.*

KAUFMAN, J. B., passed assistant surgeon. Ordered to Atlantic Reserve Fleet.

APPOINTMENTS.

DR. FRANCIS H. MCCRUDDEN, Physiological Chemist of the Rockefeller Institute in New York, has been appointed Laboratory Director to carry on the physiological chemical work at the Robert Bent Brigham Hospital, Boston.

DR. M. H. NEILL, a graduate of the Harvard Medical School in 1909, has been commissioned assistant surgeon in the United States Public Health Service.

MR. FRANZ SCHNEIDER, JR., instructor in the Department of Biology and Public Health at the Massachusetts Institute of Technology and Research Associate in the Sanitary Research Laboratories has been appointed Sanitarian to the Department of Surveys and Exhibits of the Russell Sage Foundation.

MR. GEORGE RUST BEDINGER, of Salem, Mass., has been appointed director of the Boston Milk and Baby Hygiene Association.

RECENT DEATHS.

DR. FREDERICK WILLIAM ALEXIS BERGENGREN, who died recently at Lynn, Mass., was born in Backgorden, Sweden, on Dec. 5, 1841. After receiving his education at the University of Upsala, he emigrated to the United States, where he practised his profession for a time in Brooklyn, N. Y., and after 1880 in Lynn. He is survived by his widow, one daughter, and three sons, one of whom is also a physician.

DR. HOWARD CLAPP, who died last week in Waverly Mass., was born at Lynn, Mass., in 1878. He was a graduate of Harvard College and of the Harvard Dental School. He is survived by his widow and by one daughter.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 8, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	13	1
Chicago	335	282	Waltham	8	—
Philadelphia	—	—	Brookline	8	1
St. Louis	—	—	Chicopee	6	2
Baltimore	—	—	Gloucester	8	—
Cleveland	—	—	Medford	6	1
Buffalo	—	—	North Adams	6	—
Pittsburgh	—	—	Northampton	10	5
Cincinnati	—	—	Beverly	5	1
Milwaukee	—	—	Revere	7	1
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	4	1
Boston	279	69	Westfield	10	1
Worcester	69	20	Peabody	—	—
Fall River	—	18	Melrose	3	1
Lowell	40	9	Woburn	6	1
Cambridge	26	7	Newburyport	3	2
New Bedford	34	19	Gardner	—	—
Lynn	27	4	Marlboro	5	1
Springfield	34	7	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	22	4	Adams	—	—
Holyoke	28	17	Framingham	—	—
Brockton	14	8	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	16	6	Southbridge	1	—
Salem	20	4	Plymouth	—	—
Newton	12	1	Webster	3	2
Fitchburg	19	5	Methuen	—	—
Taunton	18	1	Wakefield	6	—
Everett	6	2	Arlington	3	—
Quincy	—	—	Greenfield	3	—
Chelsea	21	6	Winthrop	—	—

JOHNS HOPKINS HOSPITAL
MAR 29 1913
Library

Original Articles

A FEW IMPORTANT POINTS IN X-RAY EXAMINATION OF THE DIGESTIVE TRACT.*

BY FRANKLIN W. WHITE, M.D., BOSTON,

Instructor in Clinical Medicine, Harvard University; Second Assistant Visiting Physician, Boston City Hospital.

THIS method can tell us so many things about the digestive tract that we must all use it and become familiar with it. I do not mean that we must all become radiologists, but that we must have x-ray plates taken of many of our patients and examine these plates and become familiar with their interpretation.

The study of the chemical factors of digestion has made little progress of late; the study of the mechanical factors has made very rapid strides, chiefly as a result of x-ray work.

It is by far the most valuable method of examination of the digestive tract recently developed.

The wonderful results which have been obtained by this method, its unquestioned high value in the diagnosis of the position, size and shape of the esophagus, stomach and bowel, its importance as a test of motility of these organs and as a discoverer of disease has led to the greatest enthusiasm for the method by those who have used it.

In the following statement appearing in a leading x-ray journal, "In all diseases of the stomach a Roentgen examination has entirely supplanted laparotomy as a means of diagnosis and as a guide to operability," we see the pardonable enthusiasm of experts for a new method, but such conclusions are likely to meet with some doubt and some just criticism.

The x-ray investigation of the digestive tract is not easy. The interpretation of the plates especially requires large experience and caution. Artifacts are abundant, false interpretations are easy, and there is much debatable ground. In building up a system of diagnosis on x-ray signs, we must carefully gather our data and revise it constantly with growing experience.

I believe the best work in this field will be done with the close coöperation of radiologists and clinicians. The radiologist has gathered his data with great skill. The clinician must study this data with care and help in interpreting it; each has much to learn from the other about the diagnosis of diseases of the digestive organs. We will leave matters of technic to the radiologist (such things as which position, vertical or horizontal, gives the best distribution of bismuth and avoids undesirable pressure upon the organs to be examined; the relative advantage of plate or screen, etc.) and content ourselves with the examination and interpretation of some of the results obtained, and their comparison with older methods of examination.

The old methods of determining the size, shape and position of the stomach and bowel by inflation with air or water are left hopelessly behind. They were very crude, and gave at most a rough idea of the size and position of the stomach and sometimes of the colon, in a distended state. The x-ray method gives us a wealth and accuracy of detail heretofore undreamed of. It has given us entirely new ideas of the shape and position of the living stomach and of its appearance when partly or wholly filled with food, the positions of the lesser curvature, pylorus, etc. Contractions, adhesions, peristalsis, the size and position of ulcers and tumors are often shown with great accuracy. The exact outline of the entire large intestine is given in a way which is hopeless of imitation by any other method. If we wish *exact detailed* information about the size, shape and position of the esophagus, stomach and bowel, we all realize that it cannot be obtained during life except by an x-ray examination.

We will pass over much of the valuable data gathered in this field, and speak only of a few points.

SHAPE AND POSITION OF STOMACH.

In comparing the shape of the stomach obtained by inflation, with the x-ray picture after a bismuth meal, we find a large, rounded outline of inflation, and a smaller outline with the x-ray, with much greater variety of form, a lower position of the lower border, and more variation in position with the patient standing or lying. It is not necessary to give up using the inflation method now that we have found one which is so much better. Inflation is very simple and easy and inexpensive and gives us a certain amount of information.

In studying the shape of the stomach with the x-ray, it is rarely safe to base a diagnosis on a single plate. Where so much stress is laid on minute details of outline, it is usually necessary to take a series of plates in which accidental changes and artifacts are ruled out and we are able to decide which changes are constant and important.

Artifacts are easily produced. The pressure of the patient against the table will shove the stomach all about, pseudo hour-glass stomach is easily produced with a patient lying on the belly or back by the pressure of the spine across the stomach. The best position seems to be either erect, or prone, with the chest and abdomen supported to avoid pressure.

There is much variety in the shape and position of normal stomachs,—hook-shaped, horn-shaped, and so-called text-book stomachs. As most of these details are well known to you, I will pass over them briefly.

The normal appearance of the pylorus and the first portion of the duodenum, the so-called

* Read at the Fifteenth Annual Meeting of the American Gastro-Enterological Association at Atlantic City, June, 1912.

"cap," are very important in the diagnosis of cancer and ulcer at the pylorus, which deform the shadow. We will speak of this later.

The tone of the stomach is indicated by the form and the distribution of the contents. While the normal stomach embraces its contents and always fills up to the cardiac portion and gradually widens on filling, the atonic stomach is like a flaccid bag, with the contents entirely at the bottom and with the median part of the stomach more or less collapsed, and gradually fills up from below.

In so-called gastroptosis, we find that the stomach as a whole does not drop down. The cardiac end of the stomach is fixed and we have simply a ptosis of the middle and pyloric end of the stomach, which is unusually mobile and swings downward and to the left, dragging the first portion of the duodenum after it, so that we find many patients whose pylorus is in the median line, or even to the left of it. In atonic dilatation, the stomach sags vertically down into the pelvis. In chronic dilatation from obstruction of the pylorus with hypertrophy of the muscle wall, the stomach is more globular in outline.

With reference to the size of the stomach, increase in vertical length is always due to ptosis and atony. Increase in all dimensions to stenosis or the swallowing of air, or inflation for diagnosis. Decrease in size may be due to many causes; to disuse in inanition or starvation, or stenosis of the esophagus, to rapid emptying from gastroenterostomy, or insufficiency of the pylorus associated with sub-acidity, or from shrinkage of the wall from infiltration with cancer or ulcer, or to hyper-tonicity. This contraction frequently converts a normal hook-shaped stomach into the horn-shaped.

In gastric ulcer we may get many changes. A displacement of the pylorus upward and to the left, due to a shrinkage of the wall with shortening of the lesser curvature; intermittent transverse contractions associated with florid ulcer; permanent transverse contractions due to scar tissue, forming the hour-glass stomach,—this latter is one of the most brilliant demonstrations of the x-ray. Adhesion of the stomach to the liver may be shown by an absence of palpatory mobility with good respiratory mobility.

The use of a local tender point in connection with the x-ray examination easily leads to error. The tender point is often found to lie outside the filled stomach.

A shadow due to the sticking of bismuth to the surface of a flat peptic ulcer seems to be a rare event of little diagnostic value. Haudek has not seen it once in ten years' experience in his clinic, where more than 2000 stomach cases are yearly examined. This seems to be the almost universal experience of radiologists in this country. Even with the ordinary crater-formed ulcer, it is rare that any remains of bismuth are seen after the stomach is empty. An ulcer which has penetrated through the gastric wall may give rise to a special appearance, an outgrowth or pouch of the bismuth shadow with an air bubble at its summit, with retention of bismuth and immobility to palpation and pressure.

In cancer of the stomach an early diagnosis by the x-ray seems almost impossible. In clearly defined cases it gives us much information about the site and extent and operability of the growth. The most typical appearance is a marked irregular defect in the gastric shadow.

The examination of the duodenum is very important and frequently unsatisfactory. The first portion may point backward or be hidden behind the stomach, or may be deformed by tension upon it, and the second and third portions are often not easy to identify as intestinal peristalsis is so active that they are found empty. The duodenum, contrary to our previous ideas, is a relatively mobile organ, and in ptosis of the pylorus the first portion elongates remarkably.

Cole has called especial attention to the first portion of the duodenum which is dilated into a so-called "cap," which sits, as it were, on the pylorus, and radiologically should be considered part of the stomach since its contraction corresponds with the gastric cycle, and is entirely unlike the small rapid peristalsis of the bowel. The acidity of its contents and the location here of 90% of the duodenal ulcers indicate its surgical importance. The so-called "cap" varies in size, shape and position in different persons. The pyloric sphincter is shown in clear pictures as a clear space an eighth to a quarter of an inch wide between the lower end of the stomach and the "cap" of the duodenum, through the middle of which a slender thread of bismuth runs. During diastole of the stomach the food may drop away from the pylorus. This clear space must not be interpreted as adhesions or obstruction.

SHAPE AND POSITION OF INTESTINES.

It is difficult to get clear outlines of the small intestine owing to the rapid passage of bismuth through it, but brilliant pictures of the colon are easily obtained either by giving the bismuth by mouth or enema. The first is the method of choice for studying the rate of passage of the bismuth through the stomach and intestine, and the second is the method of choice for quickly outlining the large intestine. An enema of one pint will pass up the large bowel to the ileocecal valve in from two to five minutes, and is easily retained. The position of every portion of the large bowel is wonderfully shown, and the exact position and degree of stenosis may be brilliantly demonstrated. The cecum is shown to be an organ of great mobility and frequent low position. It often crosses the sacroiliac line and may reach the median line. The bismuth enema seems to me the most valuable method we have of detecting and locating stricture, cancerous and benign, of the sigmoid and colon. On the other hand, I know from personal experience that partial or intermittent obstruction by adhesions and bands,

even where the whole sigmoid is tied up in a mass of adhesions, may entirely escape detection by the x-ray. This is probably not true of obstruction due to tumors or annular strictures. On the other hand, artifacts and accidental outlines are easily obtained and may mislead the unwary. The picture in the colon may be modified by impacted feces, which give abnormal contours, prevent filling of the cecum, etc. There is frequently an empty or apparently narrowed place where the free sigmoid joins the firmly attached ascending colon. This must be remembered in trying to diagnose obstruction to the lower bowel. The angulation of the splenic structure is often surprisingly sharp, and pseudo Lane kinks are not rare; I have several times had occasion to advise against operation which was proposed as a result of misinterpretation of x-ray pictures of the bowel. Conservatism is needed until our data are more definite.

In many cases the x-ray can give us only an indication for exploration; in occasional cases we may perhaps expect a really early diagnosis of cancer of the bowel, and in other cases an accurate localization of stenosis. It will surely be of much aid in the differential diagnosis of tumors, spasm, and adhesions as a cause of obstruction of the bowel. It is of great help in the study of chronic constipation in separating the atonic from the organic obstructive cases and in showing us in just what part of the intestines the delay in the passage of feces occurs.

SECRETION.

When we come to a study of the *functions* of the stomach and bowel, our older methods make a far better showing. Tests of secretion are very important in diagnosis. Secretion, absorption, fermentation, must still be studied by examination of stomach contents and of the feces. The x-ray tests of secretion thus far proposed are rough and unsatisfactory. Schwartz' method of testing the time of digestion of a fibroderm pepsin bismuth capsule, or Schlesinger's method of measuring the amount of free HCl by giving a dose of sodium bicarbonate and estimating the amount of gas produced, are very crude and seem unlikely to replace the older methods of test meals and examination of stomach contents.

MOTILITY OF THE STOMACH.

The x-ray can give us much valuable information about the motility of the stomach, and many of its advocates proclaim it as the only satisfactory test of motility and regard tests with the stomach tube as inaccurate since small residues in the stomach may be neglected.

The motility of the stomach may be measured by the size of the residue in the stomach two, four, six, twelve or twenty-four hours after a Bismuth meal, or by comparing the size of the stomach residue with the amount in the bowel; or when the stomach is empty, the position of the head and tail of the bismuth column gives valuable indication of the motility of the stomach and bowel.

The normal stomach may be counted upon to empty itself of a bismuth meal in six hours or less, therefore bismuth residue at the end of six hours is important in diagnosis. Large residues usually mean stenosis of the pylorus, small residues are usually due to atony or spasm associated with ulcer.

There seems to be considerable variation in results and some uncertainty of conclusion here, which is perhaps only natural since the amount of bismuth used and the amount and kind of food given must affect the results with different technic. A standard bismuth meal, like the standard Ewald-Boas test breakfast, would no doubt clear up some minor differences. There is a close relation between the tonus and motility, as we might expect, but much difference of opinion exists about details. The hyper-tonic stomach may empty in two or three hours, the normal stomach in from three to five hours, and the atonic in from four to eight or more hours, variously estimated. Haudek's statement that simple atonic delay in emptying never lasts as long as six hours, does not agree with my own recent experience that fully half the cases of simple ptosis have an eight to ten hour residue.

In ulcer a similar difference of opinion exists. Haudek finds that almost every florid gastric ulcer disturbs the motility of the stomach by causing spasm of the pylorus. He has never found a gastric ulcer without this delay and considers a small residue after six hours with hyperacidity almost characteristic of ulcer. Ulcer in other parts of th stomach may cause such spasm of the pylorus that the bismuth is retained two to four times the normal period, even up to twenty-four hours, while operation shows the pyloric walls perfectly normal. Haudek finds no case of spasm of the pylorus and no case of six hour delay of bismuth residue without serious alteration of the stomach wall. Eppinger and Schwartz, on the contrary, report a case of a tubercular girl of sixteen, with much vomiting and a spastic hour-glass shaped stomach, which contained a bismuth residue at the end of twenty-four hours in the fundus. When this spasm was relieved by atropine, the stomach took a normal shape and emptied itself of bismuth in two hours. The autopsy showed that the mucous membrane of the stomach was normal, without ulcer, erosion or scar. The short duration of the case, only a few weeks in all, gave no chance for an ulcer to heal and disappear.

Bardachzi, in contrast to Haudek's work, has recently reported a series of twenty-eight cases of proved peptic ulcer, in more than half of which the stomach was found empty in six hours after the bismuth meal.

Hypermotility of the stomach is almost always associated with achylia, if the pylorus is free.

Cases with marked stenosis of the pylorus

usually show delayed motility, and if the stomach is empty in six hours, stenosis can usually be ruled out, but even here there are exceptions. I know of two cases of stenosis of the pylorus down to lead pencil style, one of which emptied in five and the other in five and one-half hours.

Even a little residue after twenty-four hours is considered absolute proof by many of organic stenosis, but I have one patient at present under observation, well nourished and almost without symptoms, whose stomach empties itself entirely of a coarse test supper in twelve hours, and yet the stomach shows a well marked bismuth residue after twenty-four hours. I have seen several other cases of twenty-four bismuth residue, unexplained even at operation. Residues after shorter intervals, from six to twenty-four hours, are frequently regarded as lesser grades of stenosis, so-called relative stenosis. This group will include many cases of simple atony.

In cancer of the stomach there is usually delayed motility, if the tumor is near the pylorus, but we may have good motility even with advanced tumors of the pylorus, especially if they are ulcerating.

In the face of so much variability in results in the same disease, the results of x-ray tests of motility must be interpreted with great caution. Typical changes of motility, *together with other changes* are very valuable and give us clear indications. Slight changes in motility, or apparently normal results, may lead to great difficulties in diagnosis.

Comparisons between the x-ray and other methods of testing the motility of the stomach, such as the use of a test supper, and the aspiration of fasting contents, are very interesting. In making this comparison, we must consider the power of the stomach to pass on ordinary food as our standard, and if the power of the stomach to empty itself of bismuth paste differs widely from this, so much the worse for the bismuth method. Fortunately, both methods give the same result in the majority of cases. There are many interesting differences, however, which may be explained in different ways, and which need further study.

In cases with large gross fasting residue after twelve hours, there is usually marked disturbance of motility in the x-ray examination. In cases with small gross residue, the x-ray usually shows disturbed motility, but sometimes in cases with marked fasting residue, characteristic vomitus, visible peristalsis, a clear clinical picture of obstruction, bismuth passes along relatively rapidly, and the stomach is found empty within six hours.

How are we to explain these differences in the passage of bismuth and of ordinary food? Perhaps by the different kinds and amount of work which they give the stomach to do. The muscle may be capable of passing out the smooth bismuth paste, and incapable of passing out the coarse mass of ordinary food. It has been suggested by one radiologist that the bismuth may act like a foreign body and stimulate muscular contraction.

On the other hand, how shall we explain the long delay of bismuth in a stomach which passes, or appears to pass, on ordinary food in a normal time? Is it possible that the bismuth remains sticking to the wall, while ordinary food passes on, or is it possible, as has been recently suggested to me by a radiologist, that in such cases the bismuth test is really more delicate and reliable, and that we actually miss food residue in our twelve hour tests with the stomach tube through our inability to get it out through the tube, and call these stomachs empty and normal when they really are not? Personally, I do not believe this is the case, as I always thoroughly wash out these fasting stomachs, and it seems hardly credible that food residue could be missed where this precaution is taken.

PERISTALSIS OF THE STOMACH.

Peristalsis is best studied by the screen, and hence will not be seen by most of us, but it is often well indicated on the plate, and thus deserves a few words.

This is a sign which can practically only be studied by means of the x-ray, and is a very variable factor in digestion, depending, as it does, on emotion and appetite and kind of food; and mistaken conclusions are very easy. Abnormal peristalsis alone is not enough for diagnosis.

The normal peristalsis in the stomach is unobstructed, commonly three to six waves, which seem suprisingly deep at times. Normal peristalsis may be obstructed by anything which deforms or stiffens the stomach wall, such as cancer, ulcer or adhesions. We usually get diminished peristalsis in atony. Increased peristalsis is often found in hyperacidity, ulcer, and obstructed pylorus.

MOTILITY OF THE BOWEL.

The duodenum, as a rule, empties rapidly, and marked stasis of the bismuth meal is so unusual that it is always striking and significant.

It may be due to the deformity caused by chronic ulcer, adhesions, or cancer, or sharp kinking over the peritoneal band at the duodenojejunal junction.

The presence of *simple* duodenal ulcer has little effect on the passage of bismuth through the duodenum; its rate may be normal or more rapid than normal.

In the duodenal cases I have seen, the x-ray has been of greatest help in demonstrating the deformity of the first portion of the duodenum due to chronic ulcer and in showing stasis in the duodenum due to adhesions.

The time of passage of the bismuth meal through the intestine is very important and interesting in connection with the diagnosis and location of the causes of chronic constipation,

and chronic intestinal obstruction. The "time table of the bismuth train" is easy to understand. Naturally there is much normal variation in different individuals and with different kinds of food and different amounts of bismuth.

The head of the bismuth column normally reaches the cecum in four to five hours, the hepatic flexure in five to eight hours, and the splenic flexure in seven to twenty-four hours. The end of the bismuth column follows four to five hours behind. The bismuth meal has normally left the stomach entirely in six hours and wholly passed the small intestine in nine hours; in eight to sixteen hours practically all the bismuth should be in the descending colon and in twenty-eight to thirty-two hours in the pelvic colon, where it remains till emptied out by defecation.

It is interesting to find that most cases of constipation do not depart from the normal schedule till the colon is reached, and many not till the pelvic colon is reached. In the majority of functional cases constipation means faulty defecation, not sluggish bowels as a whole; and it is obvious that enemas are usually more needed than cathartics, which often hurry the food through the whole bowel with unnecessary irritation, and disturbance, merely for the sake of emptying the rectum.

There are several contributory causes in atonic constipation, such as abnormal length and sagging of the transverse colon, rarely of the sigmoid, and simple kinking of the flexures. The latter has been much emphasized as a cause of constipation, but I have not been sure of it in any cases I have seen. The kinks have often appeared very sharp in the pictures, especially the splenic, but have been passed on time by the bismuth. (I am referring here to simple kinks due to the sagging of the bowel from its attachment, not to the kinks due to adhesions.)

In atonic constipation of the ascending colon, which type is less common, there is stagnation of bismuth in the cecum and ascending colon with dilatation and pouching; this is also a favorite site for adhesions starting from chronic appendicitis.

In my own experience, the x-ray has proved most useful in separating the medical from the surgical cases of constipation or obstruction, those due to atony of faulty diet from those due to adhesions or tumors.

In one patient who had had several years of unsuccessful medical treatment for severe constipation and debility by one of our best physicians, an x-ray examination gave an immediate diagnosis of marked constriction and deformity of the ascending colon due to adhesions. An operation confirmed the diagnosis and promptly relieved the condition.

At first it was a little disappointing to send a patient with chronic constipation for x-ray examination and get a normal report, but I soon appreciated the value of ruling out an organic cause in such cases.

It does not seem to me necessary to make the x-ray a part of the routine examination in all digestive cases, nor to dispense with any of the older forms of examination because we have a new and valuable one.

In the majority of cases the clinical history and the ordinary physical examination, including the stomach contents and feces are all that we need for diagnosis, and there is no need to put our patients to the trouble and expense of a further special examination, but in many even of these cases where expense is not a great object, the x-ray gives interesting and valuable confirmatory evidence.

We must remember that several plates must be taken as a rule in abdominal cases, and often quite a series, for only constant variation from the normal outline has value in diagnosis.

On the other hand, in many cases the x-ray is a very essential part of the examination and gives us clear and definite information not otherwise obtainable, and occasionally may be worth more than all the rest of the examination put together and far more than the price paid for it.

I have seen cases wrongly diagnosed by careful and expert physicians, undergo months of useless treatment, and then have the right diagnosis made by a single x-ray examination with prompt recovery of the patient.

The examination in cases of disease of the esophagus is not complete in my opinion without the use of the x-ray.

I now use the x-ray habitually in all cases of disease of the stomach where the diagnosis is in doubt, or where the result of careful treatment is unsatisfactory without obvious cause. I believe that most cases of marked chronic constipation, especially those which do not yield to treatment, should have an x-ray examination.

We must not be disappointed if the x-ray occasionally shows us nothing at all in very troublesome cases. This frequently happens in functional cases with most trying symptoms of long duration.

None but experienced radiologists with absolutely first-class apparatus can be relied upon to take uniformly good abdominal pictures. Men who take good bone, joint and chest pictures, may utterly fail below the diaphragm.

The hope has been expressed that the x-ray will take the place of the stomach tube, since most people would rather swallow bismuth paste than a tube. We still need the tube since the x-ray can give no information about secretion, pathological products of the wall, such as mucus, blood, etc., data essential to diagnosis; and, furthermore, x-ray data about motility, while usually reliable, are sometimes confusing.

The x-ray is a part of the physical examination, and needs to be so used to give best results. The x-ray alone would leave us hopelessly in the lurch in the vast number of gastric and intestinal neuroses, which make up the majority of our digestive cases (gastric hyperacidity and

achylia, nervous vomiting, hyperesthesia, gastralgia, intestinal neuroses, nervous diarrheas, enteralgia), as well as in acute and chronic catarrh of the stomach and bowel, simple peptic and intestinal ulcer, parasites, etc.

We must recognize the limitations as well as the value of this remarkable method of examination.

In closing, I wish to thank Dr. Ariel W. George, of Boston, for the opportunity to examine and discuss many excellent x-ray plates.

THE EXPERIMENTAL PRODUCTION OF LESIONS RESEMBLING PELLAGRA.*

BY HERMAN M. ADLER, M.D., BOSTON,

IN presenting this account of certain observations that were made in the course of experiments conducted during the past three years, it should be understood that it is not my intention to enter the lists for or against any of the present theories of the causation of pellagra. The small number of clinical cases of pellagra that we in the North are given the opportunity of seeing preclude our arriving at any very complete conception of this disease. On the other hand, the very fact that cases do occur in the North under conditions which at first sight seem radically different from those which are believed to be predisposing to the occurrence of pellagra should lead us to consider that this disease may be of more general and fundamental importance than is usually conceded.

In the course of the past two years, without any special effort on my part, four cases of pellagra have come to my notice, all inmates of Massachusetts institutions.[1] Undoubtedly, as the interest in this disease is further aroused, more cases will come to our attention. It is clear, then, that pellagra is not without considerable importance for us in the North, as has been pointed out by many authors, and it becomes necessary to inquire into its significance. The question that immediately presents itself is perhaps comparable to the question that is raised by the occurrence of such diseases as pernicious anemia, the results of arteriosclerosis, et cetera, in the insane.

In all diseases we are accustomed to consider two main factors: the one, the causative factor; the other, the reaction of the individual to the causative agent. The importance that has been given to the infectious diseases on account of the remarkable advances in this branch of knowledge during the past decades has, perhaps, diverted the attention of most investigators to a more or less degree from the consideration of the second factor, that of the reaction of the individual to the causative agent. When, however, we undertake the investigation of the chronic diseases, of which arteriosclerosis and various forms of insanity are perhaps the most striking examples, the importance of the particular causative agent in any individual case is often overshadowed by that of the reaction of the individual. In a case of arteriosclerosis, for instance, it is not enough to discover that the pneumococcus has infected the lungs and is causing pneumonia, but the all-important point is, what is the individual's reaction to this organism. In one case we may find that the result is a typical, straightforward lobar pneumonia; in another case we may find practically none of the symptoms of lobar pneumonia, but indefinite symptoms and signs of a low-grade septic infection running a more or less rapidly fatal course with or without mental symptoms, and offering at no time a clinical picture which can in any sense be called specific for the pneumococcus. It is this point of view which is essential in considering the mechanism of most chronic diseases, and, in my opinion, it is this point of view which is of importance in attempting to determine the clinical significance of pellagra.

In the course of an investigation conducted with the object of determining the reasons for emaciation and anemia in many chronic diseases found among the insane and senile, the following main points have been made.[2] It has been found that certain cases of emaciation were suffering from the effects of a fat intoxication. This is a condition which has long been the object of attack by pediatricians. While in the realm of infant diseases the main stress has been laid on the intoxications with foreign proteins, there are a number of instances on record where loss of weight, gastrointestinal disturbances and anemia, often approaching the pernicious type, have been observed as the direct effect of intoxication by foreign fat.

A similar condition has been shown to exist in certain cases of extreme emaciation due to general paralysis.[3]. In these cases it was possible to demonstrate an autohemolysine in the serum after overfeeding with fat in the form of milk or cream. The autohemolysines disappeared regularly when the fats were reduced. These experiments pointed to the existence of a defect in the ability of the individual for handling what under normal conditions was a food. It is an instance of an intoxication by a substance which ordinarily should help rather than harm the organism. The work of Faust and Tallquist[4] leads us to assume that the hemolysine in this case was oleic acid or some similar chemical substance.

Experiments on the production of pernicious anemia in rabbits by overfeeding with olive oil, cotton-seed oil, chemically pure triolein, etc., have brought out the facts that an excess of fat may be absorbed by the intestines; that, having been absorbed, it will produce at times the symptoms of acute enteritis, loss of weight and in time a varying degree of anemia, which may be severe enough to closely resemble the pernicious type. In these experiments ten rabbits were subjected to chronic poisoning with oil. Of

* From the Laboratory of the Danvers State Hospital. No. 25 of the Danvers State Hospital Series.

these, three had previously been fed daily for about a year with 0.3 gram of quinine. Three rabbits had been treated for three months with intravenous injection of 0.01 gram of quinine daily. The remaining four received daily feedings of olive oil without previous treatment. Five cubic centimeters per kilo weight of olive oil was the dose given to all of the rabbits.* All of these rabbits developed the blood picture of a secondary anemia within a few days. In four the blood picture of pernicious anemia developed in from two to three months and lasted for a few days. The weight curve followed approximately the appearances in the blood, dropping sharply as the anemia became marked, rising as the anemia improved. The weight and anemia improved markedly whenever the feeding of oil was temporarily suspended.

In six out of these ten rabbits there appeared during the latter part of the experiment, four months or more after oil feeding was commenced, a skin eruption on the inner surface of the ears. This condition was in the nature of a diffuse lesion, characterized by intense congestion and thickening of the entire ear. The ears would become so much thickened that they could be folded over with difficulty, and the congestion caused them at times to appear dark purplish in color. This appearance of the ears was invariably accompanied by acute enteric symptoms, profuse diarrheas and bloody stools. At the same time the weight of the animal dropped rapidly. The oil feedings were discontinued and the symptoms lessened in severity and disappeared. The ears gradually improved until little remained except a few crusts. On feeding the oil again, frequently the intestinal symptoms returned, but only in one case has the eruption in the ears increased in severity a second time. Five out of the six rabbits showed the ear lesion during the months of June, July and August, improving through the fall. One animal showed the ear lesion in May and improved in the course of the summer. The three rabbits that had been fed quinine for a year previous to the oil feedings at no time showed any signs of an eruption or inflammation in the ears. The fourth rabbit that failed to show these symptoms was one of the three that had been treated with the intravenous injection of quinine.

During the entire experiment the animals were kept in all other respects under the same conditions as they had been previously, and under the same conditions and in part in the same cages with control rabbits that were not under experimentation. Not a single rabbit in our entire animal house at Danvers, out of some 25 to 30 animals, showed anything resembling this eruption, except the rabbits mentioned. The rabbits were not kept isolated in any sense, and all were fed alike, the same food, in the same amounts, from the same stock. The only difference between the animals under experimentation and those not, lay, so far as could be ascertained, in the feedings of oil.

It would seem that there were several factors involved in the production of this condition. In the first place, we have the introduction of a large amount of oil, the chief constituent of which is triolein. This triolein is split up in the intestine, in part at least, into glycerine and oleic acid, and the oleic acid is absorbed. Oleic acid is a hemolytic agent, and, unless neutralized in some fashion, will cause destruction of red cells. It appeared, furthermore, from experiments conducted upon the brains of cats† that oleic acid is a neurolytic as well as a hemolytic agent, that is, it will destroy by lysis the nerve cell in the same way that it destroys the red blood cell. It is very probable that this lytic action of oleic acid is not confined to these two types of cell.

In the second place, we have to consider here the effect upon the intestine. This seems to be due to the irritating action of the hemolytic oleic acid, probably not only upon the red cell but also upon the smooth muscle coats of the intestine. At autopsy an intestine in this condition shows a marked congestion of the mucosa and submucosa, especially in the region of the lymphoid cells beneath the epithelium of the villi. The cathartic action of olive oil has long been known to the clinician. Its absolute harmlessness in all doses, however, may be doubted in view of these findings.

In the third place, we have to consider the production of a superficial eruption on the skin in one part of the rabbit, namely, the ears. The only immediate reason that I can assign for this site is that it is the only place on the body of a rabbit which is not covered by fur. Attempts to prove this point by shaving parts of the body, failed on account of the length of time required for the reaction and the practical difficulties of keeping the animal shaved closely for such a period. This part of the work is at present being repeated. There were at no time in any of these animals any symptoms pointing to an involvement of the central nervous system, nor were any lesions discovered post mortem.

These experiments seem to be presumptive evidence that a condition which is characterized by a dermatitis and acute enteritis need not be necessarily a clinical entity in the sense of being a specific reaction to a specific causative agent, but that this may be a more or less general reaction common to a large number of pathological conditions. If we assume that the mechanism of this sort of disease includes on the one hand a causative agent of the general nature of the chemical used in these experiments, on the other hand a protective apparatus which has a greater or less degree of strength, we can conceive the production of the same symptoms as a result of considerable variation in the exact mechanism.

* This dose was determined upon after experiment in which it was found that a dose of 10 c.c. of oil per kilo of body weight produced experimentally violent diarrheas, and rapid loss of weight, and death after from 24 to 48 hours. One dose of 10 c.c. per kilo of body weight suffices to kill occasionally, two or three doses invariably.

In the first place, the causative agent may be so powerful as to overwhelm the protective apparatus of the best equipped individual. This powerful effect need not depend upon quantity. For instance, it is accepted that the hemolytic action of oleic acid depends on the fact that it is unsaturated. Oleic acid, however, contains only one double bond or unsaturated bond in its molecule. There are substances of the general chemical and physical nature of oleic acid which are unsaturated, which contain two or more double bonds in the molecule and which are, therefore, more toxic, more hemolytic, so that the dose required of such a substance may be actually very much smaller than that of oleic acid and still act pharmacologically more powerfully. It is well known that a great variety of such unsaturated fats or fatty acids occur in nature. Such unsaturated fatty acids, which in general are classed with the drying oils or the semi-drying oils, are frequently constituents of our foods, as Mizell[6] and others have pointed out. This is true of the North as well as of the South, where the butter substitutes are in use in considerable quantities. These facts do not, however, preclude the possibility of the introduction or production of such a substance by means of parasites or bacteria, and thus the reaction would be rather to a chemical substance regardless of where it came from, than to the particular living thing that produced the fat.

On the other hand, we have the other factor of the defense of the organism. It has been shown by Stheeman[7] that the chief defensive apparatus for toxic fats is the lymphoid tissue. This lymphoid tissue is found in the body arranged in the lymph glands and spleen, and distributed through the various organs to a greater or less degree, notably in the submucosa of the intestine. Now, it has been observed that the lymphoid tissue of certain cases of insanity and the lymphoid tissue in senescence is diminished quantitatively. The experiments quoted above, in which hemolytic substances were introduced into the blood stream by overfeeding with fat, were carried out successfully only in cases in which the emaciation suggested a partial atrophy of the lymphoid tissue.

There is one point which is, perhaps, of the most striking importance in connection with this disease, namely, the relation of sunlight to the production of the eruption. While my experiments have not yet progressed to the point where I can speak with any degree of certainty upon this matter, I am inclined to the belief that sunlight is merely the exciting irritant, but has nothing to do with producing the condition of irritability in the skin. Instead of an ordinary sunburn, the individual is injured to the extent of inflammation, just as some fair-haired people with little pigment in their skin may suffer from an acute inflammation as a result of a slight exposure to the summer sun, which in a brunette would cause little inconvenience. Just what is the mechanism of the production of this state of irritability remains still to be determined. There is, however, considerable evidence in support of the conception that the same condition which produces congestion and peristalsis in the intestine will predispose the skin to harmful attack by light. I hope that in the near future I may be able to report further on this phase of the problem.

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THE PRESENT POSITION OF ABDOMINAL CESAREAN SECTION IN ECLAMPSIA.*

BY JOHN T. WILLIAMS, M.D., BOSTON.

THIS article represents the result of an unprejudiced inquiry into the actual value of Cesarean section in eclampsia as shown by the reported cases in which it has been performed. In spite of the recent wave of conservatism in the treatment of eclampsia which has swept over the obstetrical world, there are still many who hold that immediate delivery is the first essential in successfully coping with this condition.

For rapid delivery in eclampsia there are three methods from which to choose:

1. Manual or instrumental dilatation of the cervix.
2. Vaginal Cesarean section.
3. Abdominal Cesarean section.

The chief obstacle to the delivery of eclamptics is the boardlike rigidity of the undilated cervix, which seems to be especially marked in eclamptics; and although the majority of the patients are primigravidae, it often occurs in those who are multigravidae as well.

The dilatation of such a cervix is difficult, tedious and exhausting, and accompanied by considerable shock, and the danger of serious laceration of the cervix and lower segment of the uterus.

To overcome these disadvantages, Dührssen devised the operation of vaginal Cesarean section. The technical difficulties of this operation are considerable. Its performance requires a considerable degree of skill and experience in vaginal operating, at least two assistants, and good illumination; conditions difficult to obtain except in a hospital.

* Part of a paper read by invitation before the Everett Medical Society, May 8, 1912

OPERATOR	GRAVIDA	MONTH OF PREGNANCY	CONVULSIONS	ALBUMEN	MECHANICAL INDICATIONS	RESULT MOTHER	CAUSE OF DEATH	RESULT BABY
van den Ameer 1	I	10	Several	?	Conj. Vera 6.5 Cm.	Lived		Lived
Halberstma 2	I	9	9	?	0	Died	Peritonitis 2 Days	Lived
Ibid	I	10	8	?	0	Lived		Lived
Ibid	I	10	Several	?	0	Lived		Lived
van der Hoeven 3	I	7	7	?	0	Lived		Died
van der Mey 4	I	7	Several	?	0	Lived		Died
v. Herff 5	I	9	20	?	0	Lived		Lived
Müller 6	I	9	20	?	0	Died	Cerebral Hemorrhage 4 Days	Stillborn
van der Put 7	I	10	11	?	0	Died	Oedema of Lungs	Stillborn
Reijenser 8	IV	9	Several	?	0	Lived		Died
Staude 9	I	?	20	Much	0	Died	Pneumia 11 Days	Stillborn
Czempin 10	I	10	1	Much	0	Died	Bulbus Lesion 36 Hours	Stillborn
v. Swiecki 11	VII	10	Several	?	0	Died	Oedema Lungs	Stillborn
Hersheim 12	I	9	14	Much	0	Died	Hyper-pyrexia 18 Hours	Lived
Ibid	I	10	8	?	0	Lived		Lived
Schauta 13	I	10	22	?	0	Lived		Died
Kaltenbach 14	I	10	2	?	0	Lived		Died
Doderlein 15	I	9	24	?	0	Lived		Lived
Decio 16	I	?	?	?	0	Lived		Lived
Everke 17	I	?	?	?	0	Died	Eclampsia 12 Hours	Lived
Zweifel 18	I	10	2	Much	0	Lived		Lived
Gusserow 19	II	10	1	Much	Perineal Tear Extensive Rupture Pelvis	Died	Pneu. Hemorrhagic Cystitis Gonor. Infl.	Stillborn
Graefe 20	III	10	?	Much	0	Lived		Lived
Leopold 21	I	?	9	1/3 %	0	Died	Peritonitis 9 Days	Died
Ibid	I	?	5	7/10 %	0	Died	Eclampsia 18 Days	Stillborn
Fehling 23	III	10	0	8%	0	Died	Oedema Lungs 7 Days	Died
Schatz 24	II	9	8	Small Amount	0	Died	Cerebral Hemorrhage Five Months	Died
Ibid	I	10	18	3/4 %	0	Lived		Stillborn
Bücker 25	II	10	0	?	Cervix Torn Perineum Ruptured	Lived		Lived
Küstner 26	I	9	8	1/8 %	0	Died	Oedema Lungs 6 Hours	Died
Burmeister 27	I	10	8	Much	0	Lived		Lived
Kemansy 28	I	?	Present	?	Contr. Pelvis	Lived		Lived
Kerrins 29	I	?	Frequent	High Percent.	0	Lived		Lived
Köschau 30	?	?	?	?	0	Lived		Died
Ibid	?	?	?	?	0	Lived		Lived
Konig 31	I	10	1	1/2 %	0	Died	Eclampsia	Lived
Everke 32	?	?	?	?	0	Lived		Lived
Ibid	I	9	10	Much	0	Lived		Lived
Ibid	I	10	Frequent	Much	0	Died	Not Stated	Lived
Ibid	I	8	Frequent	Much	0	Died	Not Stated	Lived
Ibid	?	?	?	?	0	Died	Not Stated	Died
Ibid	?	?	?	?	0	Died	Not Stated	Died
Muller 33	I	10	Many	?	Flat Pelvis	Lived		Lived

OPERATOR	GRAVIDA	MONTH PREGNANCY	CONVULSIONS	ALBUMEN	MECHANICAL INDICATIONS	RESULT MOTHER	CAUSE OF DEATH	RESULT BABY
Bermer 34	I	7	7	1/2 %	0	Died	Eclampsia	Lived
Olshausen 35	I	?	14	Present	0	Died	Eclampsia	Lived
Ibid	I	10	?	?	0	Lived		Lived
Sippel 36	I	9	0	1 1/2 %	0	Died	Acute Hemorrhagic Nephritis 7 Days	Lived
Herring 37	I	10	0	?	0	Lived		Lived
Treub 38	II	9	1	Present	0	Lived		Lived
Martin 39	I	9	?	Present	0	Lived		Lived
Brenner 40	I	10	?	Much	Contr. Pelvis	Died	Peritonitis 3 Days	2 Died
Ibid	I	10	12	?	Contr. Pelvis	Lived		2 Lived
Svechnikow 41	I	9	5	?	Contr. Pelvis	Died	Sepsis 4 Days	1 Stillborn
Ibid	?	9	5	?	Contr. Pelvis	Lived		1 Lived
Lasenstein 42	I	10	5	7 %	0	Died	Sepsis 5 Days	Lived
Ibid	I	9	2	Present	0	Died	Eclampsia 1 Day	Lived
Ibid	I	7	12	?	0	Died	Not Stated	Stillborn
Hennecke 43	?	?	?	?	0	Died	Not Stated	Died
Ibid	?	?	?	?	0	Died	Eclampsia 36 Hours	Died
Ravenschneider 44	I	10	4	Much	0	Lived		Lived
McCann 45	I	9	44	Solid. on Heat	Dilatation Failed	Lived		Stillborn
Croom 46	I	9	Numerous	Large Amount	Contracted Pelvis. Dilatation Failed	Died	Eclampsia 8 Hours	Lived
Ibid 47	I	10	Numerous	?	Contr. Pelvis	Died	Pneumonia 3 Days	Lived
Bascholer 48	I	10	2	8 %	Contr. Pelvis	Lived		Lived
Kloss 49	I	9	Numerous	4 1/2 %	0	Lived		Lived
Smith 50	III	8	Several	Large Amount	Condition 2% Failed	Lived		Died
Brothers 51	I	10	Several	1/4 %	Vaginal Failed	Died	Eclampsia 12 Hours	Stillborn
Woodbury 52	I	10	2	1/8 %	Forceps Failed	Died	Sepsis 7 Days	Lived
Boldt 53	I	10	7	Solid. On Heat	Contr. Pelvis	Died	Edema Lungs Few Hours	Lived
Johnson 54	I	9	7	Solid. On Heat	0	Lived		Lived
Tomkins 55	I	8	5	Large Amount	Dilatation Failed	Lived		Lived
Schell 56	I	8	Several	?	0	Lived		Died
Burns 57	I	10	4	Solid. On Heat	0	Lived		Lived
Gamble 58	I	10	Several	?	Dilatation Failed	Died	Anuria 5 Days	Lived
Markee 59	I	10	3	Solid. On Heat	0	Died	Eclampsia 24 Hours	Lived
McPherson 60	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Mallet 61	Multiparous	7	A Number	?	Dilatation Failed	Died	Eclampsia Few Hours	Stillborn
Ibid	?	10	A Large Number	?	0	Lived		Stillborn
v. Godrard 62	I	8	1	?	Cervix SCARLET	Died	Eclampsia 1 Day	Stillborn

The advantages of abdominal Cesarean section over the two former methods are obvious: its physical ease of performance, simplicity of technic, rapidity of accomplishment, avoidance of tears of the cervix and rupture of the uterus, and smaller amount of shock.

On the other hand, Cesarean sections throws upon a patient with damaged liver and kidneys the strain of a major abdominal operation.

The problem which I have attempted to solve, therefore, is whether the advantages of abdominal Cesarean section outweigh the dangers from it. It seems to me that this question is best answered by a study of the results in cases in which it has been employed, and a comparison of these with the results where the other methods have been used.

In this paper I shall purposely ignore the more conservative treatment of eclampsia, because the point at issue is the relative value of abdominal Cesarean section and other methods of rapid delivery, and not a comparison of radical and conservative procedures.

Abdominal Cesarean section was first performed in eclampsia by van den Akker[1] in 1875 and by Halbertsma[2] in 1889. Excluding operations performed post mortem and on the dying, I have been able to collect in all 85 cases from the literature. It is fair to state that in 21 of these there existed a mechanical indication as well for Cesarean section, but as this in no way influenced the actual result of the operation, such cases are equally as available for our consideration as those in which eclampsia alone furnished the indication for this method of delivery.

It will be observed that these were all cases of well developed eclampsia, therefore deductions drawn from them do not of necessity apply equally to threatened eclampsia.

The following table presents a brief resumé of the reported cases. The omission of blood pressure observation is not an oversight, but it is because no mention was made of it in any reported case.

Among the 85 cases there were 41 maternal deaths, a mortality of 48.2%. This mortality is distributed as follows: From sepsis, 7 deaths; from hemorrhage from broad ligament after Porro operation, 1; from rectal hemorrhage, 1; from tuberculosis, 1; from exhaustion, 1; from pneumonia, 1; from eclampsia, 20. In 9 cases the immediate cause of death was not stated, but presumably was eclampsia.

Now let us compare these figures with the results obtained by a few leading operators with the two other methods of rapid delivery in eclampsia.

MANUAL OR INSTRUMENTAL DILATATION.

Zweifel[13]	80 cases	15% mortality
Glockner[14]	143 cases	15.49% mortality
Ferri[15]	82 cases	7% mortality
Newell[16]	79 cases	26.5% mortality

VAGINAL CESAREAN SECTION.

Dührssen[17] ...	112 cases	15% mortality
Beckmann[18] ...	43 cases	18% mortality
Veit[19]	33 cases	3% mortality
Fry[20]	13 cases	6 2-3% mortality

It will be seen at once that in none of these figures does the mortality approach that of abdominal Cesarean section. This seems to the writer to demonstrate that abdominal Cesarean section is a dangerous procedure in eclampsia, and not to be resorted to indiscriminately, but to be reserved for those cases where an absolute pelvic indication for the operation exists as well, and possibly those cases of threatened eclampsia, at or near term, where the amount of urinary secretion is not too greatly diminished, and the risk of the added strain upon the excretory functions is overbalanced by the danger of profound shock from a vaginal delivery.

The high mortality from abdominal Cesarean section results partly from peritonitis and other forms of sepsis, but mainly from the added strain thrown upon the liver and kidneys.

The fetal results demand some mention. In examining the literature it has been extremely difficult to find out the cause of fetal deaths or even to separate still-births from deaths occurring soon after birth. Friedemann[21] gives as the general fetal mortality in 1,601 cases of eclampsia 75.4%, and Goedecke[22] 48% in 330 cases.

As would be expected, the fetal results are better after Cesarean section (42.2% mortality); but so many factors,—prematurity, the effect of convulsions and the toxines of eclampsia on the child,—influence unfavorably the outcome that the fetal results must be poor under any treatment.

CONCLUSIONS.

Abdominal Cesarean section in eclampsia has a maternal mortality of 48.2%.

Vaginal Cesarean has a mortality ranging from 3% to 18%; and dilatation of the cervix from 7% to 26%.

Therefore, abdominal Cesarean section in eclampsia should be restricted to those cases in which there is a pelvic contraction sufficient in itself to demand it, and possibly also early cases of threatened eclampsia at or near term, where the shock of a vaginal delivery seems to offer much greater danger than the added strain imposed upon the excretory organs by Cesarean section.

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The Massachusetts Conference on Tuberculosis held a session at Holyoke, Mass., on March twenty-second. Dr. Carl A. Allen of Holyoke presided. Among the speakers were Dr. Allan G. Rice, president of the Springfield Association for the Prevention of Tuberculosis; Secretary Mark W. Richardson of the State Board of Health and Dr. Frank A. Woods of Holyoke. The papers and discussions dealt with all phases of the movement, ranging from methods of prevention to the care of sanatorium patients.

Clinical Department.

AN UNUSUAL OBSTETRICAL HISTORY.*

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I AM reporting the following case in some detail, hoping that the members of this Society may be able to make suggestions which will be of benefit to the patient.

There has been such a series of obstetrical misfortunes in this case that it has seemed to me unique.

I first saw the patient in October, 1906. She was then twenty-six years old and a few months along in her first pregnancy. There was nothing of any special note in her previous history. Some years before she had had typhoid fever. Since then her periods had been irregular. There had been considerable nausea and vomiting during the early part of her pregnancy, but when she came to me she felt very well. She passed through the following months of pregnancy in a perfectly normal way, and there is nothing to note until the labor started in March, 1907. Very little progress was made in spite of hard, satisfactory pains, so that finally the baby was delivered with considerable difficulty by high forceps. The baby was rather limp at first, but soon responded. The vaginal wall was cut during the delivery. The perineum was torn sufficiently to require two stitches. During the next day the patient was unable to urinate, and the urine drawn by catheter contained blood. The urine after that was clear. Convalescence went along uneventfully. The baby was nursed and has grown up into a fine healthy child now of almost six years.

About six weeks after the baby was born I examined the mother and noted that the perineum gave good support. The cervix had a bilateral tear of moderate size in it with a scar running out to the left side of the vagina. The uterus was all right.

In July, 1908, without any particular reason, she miscarried at about three months. She was curetted and a packing was left in the uterus because of excessive bleeding. It was removed the next day. There was nothing peculiar in any way about the miscarriage. She became pregnant again in September of the same year, 1908. In November I found that the uterus was retroverted and therefore under gas and ether anesthesia. I replaced it and put in a pessary. There was, however, not sufficient support to hold the pessary, and a packing had to be substituted. This, in conjunction with the knee chest position, kept the uterus forward. There was nothing of any note during this pregnancy until a few days before labor started, and several days after spontaneous rupture of the membranes, when she developed tenderness over both saphenous veins with swelling of the legs. It seemed probable that there was a thrombosis of the vessels from some cause. She was put to bed and in a couple of days labor started, the membranes having ruptured a week previously. The baby was easily delivered by low forceps. There were two stitches in the perineum. The baby did

* Read before the Obstetrical Society of Boston, November, 1912.

not cry quite normally. The sound was suggestive of pain. The baby was born at night. When daylight came it was noticed that he was jaundiced. In the evening the nurse thought that his movements contained blood. The temperature was 101. There had been a little slight leaking from the cord. Dr. Morse saw him with me and found what he considered a large, hard spleen, and a questionable enlargement of the liver.

(Dr. Morse reported this case in an article called "Jaundice of the New Born" in the BOSTON MEDICAL AND SURGICAL JOURNAL, February 24, 1910.) I take the liberty of quoting somewhat extensively from his report.

He was deeply jaundiced. There was a slight tinge of cyanosis in the face. The abdomen was noticeably large, especially in the upper portion. The superficial abdominal veins were large, especially in the upper half. The liver was felt somewhat indistinctly, running from the anterior superior spine just above the naval, and under the ribs in the left nipple line. The spleen was palpable 3 or 4 cm. below the costal border. The edge was sharp, the consistency firm. The examination was otherwise negative.

The temperature dropped to normal after two or three days and remained there. The jaundice diminished a little, but slight cyanosis continued. The size of the liver remained unchanged, but the spleen diminished a little in size. The urine after the first day or two stained the napkins yellow, but, unfortunately, was not examined as to the presence or absence of bile. The baby was breast fed and seldom vomited. It never had diarrhea. The movements were never clay-colored. They were usually yellow, sometimes brownish, at other times greenish. They at all times showed a large excess of fat in one or another form. They were examined twice for the bile with nitric acid. In one instance the test was negative, in the other questionable. This test is, however, not a very reliable one. The contents of the small intestine at the autopsy showed the presence of bile by the iodine test. Ecchymoses appeared when the baby was nine days old and a few days later bleeding from the mouth and nose began. The loss of blood, however, was not great. The general condition steadily failed and the baby died July 9, when twenty days old.

Autopsy by Dr. Rhea. Except for jaundice and a few ecchymoses, nothing abnormal was found except in the liver and spleen. The spleen weighed 13 gm. (normal, 7.7 gm.). The surface was smooth, the pulp rather firm and dark red. The Malphigian bodies were just visible as grayish points.

Liver.—There was no evidence of obstruction of bile passages either from within or without. Bile was easily pressed from the common duct into the intestinal tract. The gall bladder contained a small amount of thick bile. The liver was very deeply stained with bile, and the markings were indistinct. It was somewhat firmer than normal and thin sections of it felt tough. Histologically, there was no evidence of cirrhosis, the sections showing jaundice without cirrhosis, the jaundice being of the obstructive type. The finer bile passages were, however, no smaller than normal and showed no evidence of obstruction. Cultures from the liver, both aerobic and anaerobic, were negative.

Feces taken from the upper part of the small intestine at the autopsy contained bile, as shown by the iodine test.

My examination of the patient in September, 1909, after this confinement, was as follows: Cervix felt hard; uterus was so far retroverted that it was impossible to reach the fundus bimanually. By November the scar on the left side of the cervix, running to the left vault of the vagina, had contracted sufficiently to form a very definite band, which appeared to prevent the cervix from going sufficiently backward to allow the fundus to come up to a normal position. A pessary was put in, which held the uterus only in what I call the axis of the vagina. As the patient was again pregnant this was all that was necessary to keep the uterus from becoming incarcerated below the promontory of the sacrum. Pregnancy was uneventful until within a few weeks of full term, when the patient began to grow larger, and it was perfectly obvious that there was a condition of hydramnios. The urine was at this time said to contain albumen, with nothing of any note in the sediment. For two weeks before labor started, uterine contractions came intermittently off and on. Labor really started on June 24, 1910, and when I saw her the os was fully dilated with the membranes ruptured. Low forceps were applied, and the head and arms of the baby were easily delivered, but it was impossible to extract the abdomen until it had been tapped and a clear fluid allowed to run out. The extraction then was easy. The placenta was large and thick, and rather soft, with deep furroughs through it. The convalescence was uneventful.

The autopsy was performed by Dr. Rhea, in a very thorough manner. Organs were examined and nothing abnormal found. There was fluid in the abdominal cavity. The umbilical cord was large and contained three twists. The blood vessels of the cord were patent. There were no thrombi at the point where the twists were present. It would, therefore, seem that the circulation easily passed along. The placenta was large, weighing 800 grams. There were no infarcts and no areas of degeneration in it. Tissue was friable and contained a large amount of blood and serum. The anatomical diagnosis was:—

Fluid in the abdomen and twisted umbilical cord. In other words, no cause for the ascites was found. The liver in this baby was normal, as well as the bile passage.

In August of the same year, some six weeks after the baby was born, the vaginal examination showed a condition like that before she became pregnant the last time. In other words, the band on the left side of the vagina through the cervix held the cervix in such a way that it was impossible to put the fundus into its ordinary normal position. A pessary, however, was put in place to prevent the uterus from becoming any more retroverted.

Being very anxious for more children she was seen by Dr. Reynolds in consultation, and it was decided to divide the band in order that the uterus might be replaced. It was thought best to do nothing to the uterus itself in way of shortening of the round ligaments or ventral suspension. In October of that year she was, therefore, operated upon, and the band divided, and the mucous membrane of the vagina sutured over the incision in the band. Division of the band allowed the uterus to be placed in good position. The tears in the cervix and perineum were at the same time repaired. Convalescence from this operation was uneventful. She then developed an acute sacro-iliac joint, and was treated by Dr. Dane. By March, 1911, it was found

that the uterus was retroverted again. It was thought best, therefore, to do a more radical operation on the band and to replace the uterus. Therefore in May, 1911, a plastic was done in the vagina, doing away with the band as much as possible, and a Mayo's operation on the round ligaments. The perineum was also anugged up, as the first operation had left a slight cystocele. Convalescence from this operation while she was in the hospital was surgically satisfactory. When she got home, however, she developed a pyelitis, which persisted off and on during the following summer. The result of the operation was satisfactory, and the uterus stayed forward where it belonged, and the band was no longer tense.

Early in 1912 she again became pregnant. The pregnancy appeared to follow a perfectly normal course until late in October, when the patient thought that she began to grow quickly larger. As far, however, as I could determine there was nothing abnormal with the mother or the baby, except that I was unable, except on one occasion, to hear any fetal heart.

Inasmuch as the parents wished to take no chances whatsoever with this baby, or to leave undone the repair work, it was determined to do a Cesarean section. I heard a fetal heart about two weeks before labor, and a week before the Cesarean section was done I heard a placental souffle, but no fetal heart. I questioned somewhat in my own mind whether the baby was alive or not. This question, however, did not appear to me to alter the method of delivery in the least. Therefore, as soon as there was a suggestion of a labor pain, a Cesarean was done. The baby was found mascerated with ascites. The placenta was thick, soft and friable. There was nothing abnormal to be seen about the uterus, tubes, or ovaries. An autopsy was not performed on this baby. Immediately following the Cesarean the patient flowed normally for about six hours; after that there was scarcely any flow. Severe after-pains and a uterus which seemed to be getting larger, seemed to me to warrant the passage of a curette into the uterus to be sure that the cervix was not blocked. A number of clots were removed. The patient after that flowed scarcely any for several days and then flowed normally, convalescence being uneventful.

The interesting question to the doctor as well as to the patient is, what is the matter which causes these congenital abnormalities. The autopsies on the babies have thrown no light on the facts. The parents have had no specific disease, and the fact that the first child was a normal baby and has developed into a well child seems to throw out any question of syphilis. It is true no Wassermann reaction has been taken, partly because the history of the misfortunes began before Wassermanns were being done, and now it seems scarcely worth while. The mother comes from a family of eight children. One sister has been pregnant only once. The baby was lost during delivery. She has never been pregnant again. Another sister has had one child and is now pregnant for the second time. Another sister, whose periods have always been very irregular, is now pregnant. There appears to be nothing in the history on the father's side to throw any light on the matter.

In a few words let me summarize the case:—

1. Pregnancy, normal baby.
2. Pregnancy, miscarriage.
3. Pregnancy, baby with congenital jaundice.
4. Pregnancy, baby with ascites.
5. Pregnancy, baby with ascites.

Medical Progress.

REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

TUBERCULOSIS.—ARTHRITIS.—PARALYSIS: INFANTILE, SPASTIC, AND OBSTETRICAL.—CONGENITAL DISLOCATION OF THE HIP.—FOOT CONDITIONS.—RICKETS AND SYPHILIS—BURSAE.—MUSCLE ATROPHY.—TENDON AND MUSCLE SURGERY.—JOINT SURGERY.—BONE SURGERY.—THE REGENERATION OF BONE.—FRACTURES.

BY ROBERT B. OSGOOD, M.D.; ROBERT SOUTTER, M.D.; HERMANN BUCHOLZ, M.D.; MURRAY S. DANFORTH, M.D.; H. C. LOW, M.D.

TUBERCULOSIS.

DRESEL reports no noticeable improvement in surgical tuberculosis from the treatment with Koch's old tuberculin. Stern concludes that subcutaneous injection of Koch's old tuberculin is the most reliable diagnostic test for bone or joint tuberculosis. He warns against the danger of too large an initial dose. Our own practice is to start with children with 1-100 of a mg., increasing it to 1-10, 1, and 3; in adults with 1-10 of a mg., increasing it to 1, 3 and 5, or even 10.

Brackett for over two years has been employing a four per cent. iodoform olive oil solution in cases of tuberculosis of the knee joint in which no bone lesion was demonstrable either by the x-ray or at operation. Arthrotomy has been performed in all cases and tissue removed for pathologic examination. Emphasis is placed on the necessity of avoiding any traumatism of the synovial cavity, except for gently breaking up adhesions with the gloved finger. The capsule is closed except for a small space in the centre of the incision, through which the nozzle of a large glass syringe is inserted. A special mattress suture is then placed and drawn tight about the nozzle. The oil is then injected under tension, this being in Brackett's opinion very important, and the capsule closed tight. No weight bearing is allowed for six months. Several subsequent injections are made at intervals of two to four months, depending upon the symptoms and signs. Large quantities of oil have been found at operation in joints two months after the initial injection. He feels it is too early for a positive statement of the value of the method, but is greatly encouraged at the

subsequent course of many of the cases. None have shown untoward results from the oil.

Heliotherapy.

The best results are reported by Rollier at Leysin, which is very high (4000 ft.). As a rule Rollier does not use plaster casts or braces, but carries out careful traction in recumbency. He begins with a five-minute direct exposure to the sun's rays, and increases it up to three hours. The whole body except the head is exposed. On cloudy days certain of the patients are treated with Finsen light. He has convinced many of the most prominent German surgeons that operative procedures are not necessary, Bardenheuer of Cologne sent him five very unfavorable cases, in which sinuses had persisted in spite of repeated operations. After a few months at Leysin all sinuses were closed.

Armand-Delille is enthusiastic over Rollier's results at Leysin.

De Quervan and Witmer report 546 cases with different localizations, and believe heliotherapy has been of benefit in all but 23. Austin believes that altitude is important in heliotherapy, pointing out the fact that 25 to 30% of the efficiency of the sun's rays is lost at sea level and only 6% is lost at the top of Mt. Blanc. Spitzmueller and Peterka have observed no difference in the behavior of tubercular patients treated in the open air and in those "exposed frequently" to sunlight.

Wilms in Heidelberg and Lange in Munich have used Roentgen rays in the treatment of tubercular sinuses and believe that they have seen very beneficial results and have observed closure in a considerable number of cases which had not yielded to other methods, including Beck's paste.

Blanchard, in an article entitled, "Passing of Bismuth Paste," reports 100 cases of the use of Beck's paste and 152 with a paste of his own made of white wax and vaseline. He does not inject in primary new opened sinuses, nor when the x-ray shows sequestra. He believes in not obstructing necessary drainage, and uses the paste only when the discharge is serous.

Bone Plastic Operations for Caries of the Spine.

Late results seem to show the value of the Hibbs and Albee operations in many cases of Pott's disease. Albee has modified his technic by the use of the motor saw, which greatly facilitates the removal of the tibial graft, and his operation is surely the simper of the two, and preserves the leverage of the spinous processes. Hibbs' operation seems, in his hands at least, to be productive of splendid results, and with a kyphos of considerable size, has the advantage of diminishing the apparent deformity, a cosmetic effect not to be lost sight of, especially in women.

Menne has been looking up the results of laminectomy for paraplegia in tuberculosis of the spine, and has collected 132 cases. He finds that 56% have been cured or improved and about 18% temporarily improved.

ARTHRITIS.

Senator reports three cases in which minor operations on the nose were followed within three or four days by an arthritis. This coincidence he believes to be significant in relation to the etiology of certain forms of arthritis.

Bering has observed eleven cases of acquired syphilitic joint disease. In ten cases the Wassermann was positive. In seven of the cases there was no other syphilitic manifestation. In nine cases the onset was slow and insidious, in two sudden and painful. The general symptoms were slight, and there was little interference with motion.

PARALYSIS—INFANTILE, SPASTIC, AND OBSTETRICAL.

In light of recent developments, the observations made by Reece in a clinical and epidemiological study of 224 cases of poliomyelitis in Devon and Cornwall, in England, are interesting. (1) The increased prevalence in hot weather. (2) The cases seemed to be grouped in a way consistent with case to case infection or possibly by way of insect carriers. (3) He believed that a healthy carrier might serve, and (4) there were apparently frequent abortive types which might infect.

Kling, Weinstedt, and Pettersson have succeeded in producing typical experimental poliomelitis from the filtered secretions of the mouth and nose of acute cases, obtained by syringing out the nares with salt solution. They have also transmitted the disease by injections of filtrations of the intestinal mucus, obtained by washing out the sigmoid after an enema. The injections were made into the peritoneal cavity and the sciatic nerve of monkeys.

At the Congress of Hygiene and Demography, Prof. Rosenau reported that he had succeeded in transmitting the disease to monkeys by the bite of the common stable fly (*Stomoxys Calcitrans*). Monkeys infected with poliomyelitis were exposed to the bite of the stable fly, and these flies were later allowed to bite healthy monkeys, who came down with typical poliomyelitis. These experiments were confirmed by Anderson and Frost, who succeeded in transmitting the disease to a third generation from the spinal cord of monkeys infected by the flies.

Flexner has reported the discovery of the virus in the nasopharyngeal secretions of apparently healthy persons. Washings of the nasopharynx were obtained from the mother and father of an acute case, and from these the disease was transmitted to monkeys and passed on to a third generation. These pieces of research have thrown much light on certain possible methods of transmission of poliomyelitis.

Delrez reports 51 cases in which the so-called Foerster's operation of division of the posterior nerve roots has been tried. There were four fatalities and four showed no improvement.

Twenty-three of thirty-one cases of Little's disease showed good result.

Hunkin reports 16 cases in which he has performed the Foerster operation, with one death in a hydrocephalic child. The time of the operation in his hands is forty minutes. This he considers an important factor in his low mortality. He has been favorably impressed with results.

Vulpius believes that only the most severe cases of Little's disease are suitable for this operation. Owing to the danger to life, he believes tenotomies should always be done first. He has observed the same favorable effects on the intelligence which has been noted after the Foerster operation, to have followed thorough tenotomies. He reports that an examination of the cases operated on by Stoffel's method of neurectomy has shown a recurrence in all cases.

Lange believes that many cases of shrinking of the anterior capsule of the shoulder joint from distortion following inflammation are mistaken for obstetrical paralysis. For this distortion, the patient is put in a plaster bed with a cast fixing the arm in 90° of abduction and marked outward rotation. This redressment is all that is necessary in children under two years. In older children Lange performs an osteotomy in the middle of the humerus and twists the peripheral fragment outward. In early cases of true obstetrical paralysis Lange believes in nerve freeing and repairing operations.

CONGENITAL DISLOCATION OF THE HIP.

Lange reports very favorable results from the use of Bradford's apparatus and of a modified special table of Weber's. Since the employment of these machines, he has seen no disturbances of the sciatic nerve, and he reports 90% of cures. The first cast is applied in 40° of abduction, marked inward rotation, and full extension in the hip and knee. This cast remains on without weight bearing for from two to three months. The second cast is applied in 20° abduction and the patient is allowed to bear weight.

In the last report of Progress in Orthopedic Surgery, we gave Dr. Bradford's views on this subject. This note from a famous German orthopedic surgeon is a striking confirmation of his opinion.

FOOT CONDITIONS.

Kellar has described an operation for hallux valgus, which as an army surgeon he has for many years performed and which has been extremely satisfactory as to relief and subsequent painless function. He aims to retain a portion of the head of the first metatarsal and especially the sesamoid area for weight bearing. After exposing the head he makes an oblique cut through the bone downward, forward, and outward (as regards the median line of the body). This removes the greater portion of the head and especially that portion on which the exostosis is most likely to occur.

Sever has called attention to the fact that apophysitis of the os calcis is (1) not an unusual condition; (2) it may occur from muscle strain in rapidly growing children; (3) it may occur from direct trauma, but less frequently and presenting the same clinical picture; (4) it never occurs after puberty; (5) with rest and protection an eventual cure in all cases.

RICKETS AND SYPHILIS.

The Wassermann reaction has revived the old question of the relation of lues to rickets. Caffarena reports a positive Wassermann reaction in 30% of twenty rachitic children and in some other member of the family in 40%. He has observed the rickets to improve under specific treatment and considers that his findings confirm Marfan's assumption of a causal relation between syphilis and rickets. Much more work needs to be done before we are prepared to accept as proven this relationship, but it would seem as if the question might be settled in a fairly satisfactory manner with the aid of the blood reactions and microscopic findings.

In a discriminating article, Fitzwilliams describes and illustrates the syphilitic bone lesions of childhood, pointing out the rarity of the supposedly common dactylitis and its occurrence in the phalanges near the ends and not in the centre of the shaft, as in tuberculosis. The common lesion of calcium deposit in or beneath the periosteum is rarely seen before four years and usually after six. He has noticed an occasional increase in the length of a syphilitic bone and a resulting asymmetry. The syphilitic osteomyelitis may closely resemble a sarcoma, especially if bone destruction goes on more rapidly than new bone formation takes place in a localized area. Fitzwilliams does not consider cranio tabes as always syphilitic, but as occurring in various marasmic conditions.

BURSAE.

Lance, in a valuable article on the lesions of the subacromial bursa and the rupture of the tendon of the supraspinatus, confirms Codman's investigations and is in entire accord with his ideas as to treatment.

MUSCLE ATROPHY.

Lovett reports cases of atrophy of muscle and bone resulting from joint disease, injury, and fixation. He calls attention to the characteristic x-ray signs of "pencilling" of the bony outline, due to thinning of the cortex and the atrophy of spongy and trabecular structure. He urges against rough and excessive massage, advising passive congestion, and active exercise, very slight at first, but followed by active, progressive use of the joint.

We have noted a punctate atrophy most commonly observed in the ends of the long bones and the small bones of the carpus and tarpus, which seems to have some neurotrophic origin in relation to a previous trauma, often surprisingly slight. Continued pain, usually out of proportion to the discoverable lesion, often accompanies this condition.

Luff and Zach have conducted an experimental research on the "Arthritic Atrophy of Muscles." They found that (1) irritative infections into a joint lead to a rapidly progressive atrophy involving all the muscles of the extremity. (2) Other procedures leading to inactivation, such as fixation or tenotomy, produced an equally rapid and intensive atrophy. (3) Unilateral posterior root section with or without simultaneous joint infection, produced slight inactivation atrophy. They conclude that experimental arthritic atrophies are explicable by inactivity.

TENDON AND MUSCLE SURGERY.

Putti believes that one of the causes for unfavorable and delayed results in tendon transplantation is the long continued immobilization following the operation with its accompanying muscle atrophy and the adhesions in the tissues through which the tendons have been passed. He has sought to obviate this difficulty by fastening the tendon so securely that no subsequent immobilization is necessary. This he accomplishes by passing the tendon all the way round the bone into which it is to be inserted, and sewing it to itself. If it is a tarsal bone he makes two channels in the bone and passes the tendon down through one and up through the other. In one of his cases, the patient began to walk in fifteen days after the operation.

Hunkin reports "An Improved Method for Treating Claw Foot." He first corrects the equinus and maintains the foot in over correction during and after the operation. He next divides the tendon of the tibialis posticus at its insertion and withdraws it through an opening near the origin of the muscle. Then making a new channel for it beneath the annular ligament he secures it subperiosteally together with the tendon of the extensor hallucis in a hole drilled in the head of the first metatarsal. The tendons of the common extensor are in like manner secured in holes drilled in the heads of the metatarsals. One of the peroneal tendons is divided at its insertion, pulled out like the tendon of the tibialis posticus higher up on the leg, passed beneath the anterior annular ligament and fastened to the cuboid. Weight bearing is allowed in a brace after six weeks and muscle training is begun.

Galli has devised an ingenious method of correcting foot drop and other paralytic deformities by using the tendons of the paralyzed muscles as ligaments. He isolates the tendons, *e.g.* the anterior tibial, above the annular ligament, and making an incision down to the bone divides the periosteum longitudinally, and pushing it away on either side makes a small gutter in the bone. He then draws on the tendon until the foot is in the desired position, and placing it in the gutter, sutures the periosteum over and through it. If for dorsal flexion, the peroneal tendons are made dorsal flexors by displacing them in front of the external malleolus. Galli's excellent results have been observed and the method would seem to have certain obvious advantages over artificial silk ligaments in the foot.

Lexer employs the following operation for the cure of habitual luxations of the peroneal tendons. With a gouge a small furrow is made on the back side of the outer malleolus. Next a hole is drilled through that bone and the excised tendon of the palmaris longus taken from the hand is looped through so as to form a retaining noose about the peroneal tendon, which is thus held in place.

Since the end results of tendon transplantation are difficult to estimate at operation and success is not as universally attained as we might wish, Drew's report of the end results of transplantation of the peroneus brevis into the tibialis posticus for valgus following poliomyelitis is valuable. The cases were none of them operated on less than a year from the onset of the paralysis and in all of them a varus developed within two years of the operation. The varus was not entirely corrected by the separation of the peroneus brevis from the posterior tibial.

Willemer has examined the end results of twenty-four cases of torticollis operated on at Mueller's clinic in Rostock. Twenty-two of the twenty-four were operated on by the method of von Mickuliez, *i.e.* partial excision of the affected sternomastoid. These had no systematic after-treatment by apparatus or exercises, and the results were uniformly good as regards function, cosmetic effect, and correction of the deformity. The results were less good in the two cases in which tenotomy alone was performed. The results of thorough tenotomy through an open incision where a careful after treatment with braces and exercises has followed are, in the congenital type, in our experience, entirely satisfactory.

JOINT SURGERY.

Short reports the end results of forty-one operations for internal derangements of the knee joint. In the torn and very loose cartilages the results of removal were almost uniformly excellent. As these results are in accord with our own observations we believe that in a frequently recurring slip of the cartilage threatening to "throw" the patient perhaps in dangerous situations the risk of the carefully performed operation is less than that from the possible accidents of slipping.

Payr has operated upon twelve stiff knee joints. Five cases which he believes he did with

insufficient technic have become stiff again. Four cases are still under treatment. Three cases show good results with freedom of motion of 90, 130, and 140 degrees. He says nothing concerning the lateral mobility of the joints.

Lorenz, in an article on arthrodesis and arthrolysis, advises against arthrodesis in children. He believes that the ankle and shoulder are the joints of choice. As regards arthroplastic operations he believes that they never should be undertaken on old tuberculous or osteomyelitic joints because of the danger of recurrence. He reviews the results thus far, and while hoping for better results in the future, he emphasizes the advantages of stiff, stable, painless joints, over mobile, unstable, painful ones. He thinks that the elbow and the jaw are the only joints which should be subjected to these operations.

We feel that the technic of these arthroplastic operations is still too imperfectly worked out to offer sure success in any joint. The occasional good results in the knee and hip seem to us to warrant their trial in at least all cases of double ankylosis. The results in the elbow and the jaw are much more uniformly good.

Natzler reports the case of a teamster of 54, unable to work because of an hypertrophic arthritis of both hips. An excision of both femoral heads has allowed him to return to his former occupation. A second case had a similar good result.

Baer has excised a part or the whole of the femoral head in 18 cases and placed the neck in the acetabulum. The results have been almost uniformly good as to freedom from pain and betterment of function.

We believe this operation should be carefully considered in all cases of painful hypertrophic arthritis of the hip.

BONE SURGERY.

Well illustrated and valuable articles on the surgery of bones, joints, and tendons, by Murphy have appeared and do not lend themselves to abstract. It is clear that the field of transplantation of bone has been greatly widened and many conditions heretofore considered beyond the pale of surgery may be safely approached by those who, by experimental and long technical training have fitted themselves for these operations. We feel that much harm may be done by too general attempts to attain the reported excellent results and that *primum non nocere* is still a chief concern of surgery.

Putti reports three interesting cases of bone cyst. In one, operative interference resulted in a return to normal conditions. In the other two operative interference was refused, and in both, although in one a spontaneous fracture had occurred, the cysts disappeared spontaneously and were replaced by normal bone. Putti also draws attention to the fact that the surgical treatment of these bone cysts need not be radical like the treatment of malignant tumors. Further, that fractures through a cyst may heal well and that the fracture itself, through giving vent to the contents of a cyst, may aid in the healing of the primary lesion.

Bloodgood, in a series of 53 cases of giant celled sarcoma, reports that he has been unable to find a single case of metastasis, and that, although certain ones have required a second operation, all have been cured. He emphasizes the importance of the relation of trauma, and makes a plea for x-ray examination in all cases where symptoms from an injury do not quickly subside. Early recognition will prevent the necessity for amputation or mutilating operations. He employs Coley's serum in all inoperable cases and before and after operation in all very malignant types of sarcoma, but he feels there is no more reason for its employment in the giant cell type than in a lipoma or an exostosis. After curetting out the cavity he disinfects with pure carbolic followed by alcohol. If there is no "splinting" bone, he transplants bone directly into the cavity after curetting.

THE REGENERATION OF BONE.

Buedinger, in a careful paper based on experimental research, concludes that "Wolff's law is justified, but that at present we are neither able to explain the real nature of the changes nor calculate the influence of weight bearing strains."

Trinci believes that the ability of the periosteum to regenerate bone is slight. His experiments tended to show that pedunculated flaps have greater vitality than free flaps, and that the formation of bone tissue is induced either by a thin layer of bone tissue attached to the periosteum or by a hematoma beneath. In case of the absence of both no bone formation can be expected. He advises against a simple periosteum transplant in cases of bony defects of large size.

Galli has been able to confirm almost completely MacEwen's observations on osteogenesis, and believes that the periosteum alone is unable to form new bone. Many of his experiments seem to show that growth takes place from the bone cells themselves and not from the periosteum. If MacEwen's experiments can be repeated it would seem as if we must change our conception of the importance of the periosteum in new bone formation.

FRACTURES.

Putti continues to report excellent results in fresh fractures of the lower leg from traction applied by means of a nail driven through the os calcis. He limits its use to (1) those cases in which continuous traction by other methods has not given a satisfactory result; (2) cases which on account of their gravity or special clinical type presuppose that other methods will be unsuccessful; (3) compound fractures in

which traction by the nail is the only method that will allow proper treatment of the accompanying wounds. During the period of traction the extremity is kept in a position of semi-flexion of the hip and knee.

Michaelis believes that there is danger from the use of this nail extension, chiefly from secondary infection, especially if the nail is left in too long, and reports two cases of long continued suppuration from its use. His indications for its use in the main coincide with those of Putti, given above.

P. Mauclaire and Burnier have found in the literature 98 cases of the so-called Kuemmel-Verneuil's disease and report two cases of their own of this tardy traumatic deformity of the spine. The symptoms coming on from two months to a year after the accident, are repetitions of the initial discomfort following the traumata, chiefly falls from ladders, etc. These consist of pain, radiating to the costal spaces, the abdomen, and legs, with sometimes exaggeration of the reflexes, paresis of certain groups, and muscle atrophy. A large well rounded kyphos develops. These are evidently the cases grouped by Leri under the heading of traumatic kyphosis and of the von Bechterew type. The advocated treatment is fixation as in caries of the spine. The etiology and pathology is not to our minds fully explained, and the danger of confusion with certain atypical cases of Pott's disease and hypertrophic arthritis is evident, but there is surely a clinical group of this sort, whether we consider them as unrecognized fractures or not.

Gangolphe is convinced that the so-called fractures of the epiphysis in the hip joint associated with coxa vara are due to disturbances of growth at the epiphyseal line. He reports a case of this separation of the epiphysis on one side and at a later date the development of a coxa vara on the other side, which never went on to epiphyseal fracture, owing to its early recognition and immobilization.

We have for a long time felt that this form of coxa vara and epiphyseal separation represented a pathologic condition of the bone growth, and that special trauma played a small part in its production. The type of adolescent in whom these lesions occur, fat, with small genitalia, is fairly consistent and not difficult to recognize. Whether these adolescent rickets have the same etiology as the infantile variety we do not yet know.

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AMERICAN SOCIETY OF TROPICAL MEDICINE.

NINTH ANNUAL MEETING, ATLANTIC CITY, N. J., JUNE 3, 1912.

(*Concluded from page 433.*)

THE PUBLIC HEALTH PROBLEMS IN CONNECTION WITH BERIBERI.

DR. R. H. CREEL, Ellis Island: In the United States beriberi has been confined to sporadic outbreaks in various parts of the country during the last twenty years. There is no evidence of any increase, and in this country the disease has not assumed public health proportions. The origin of beriberi is not known, but the great epidemicity of the disease during the last thirty years has been coincident with the increased output of steam milled or polished rice. Beriberi in Manila has steadily increased. In the fiscal year 1903-4 there were 318 deaths from this disease. A steady yearly increase in its mortality resulted in 1480 deaths in 1910-11. In the period 1903-1911, twice as many deaths resulted from beriberi as from cholera, in Manila. The disease has been practically suppressed in government controlled institutions in the Philippines, but in the population at large beriberi is on the marked increase, both in Manila and in the Provinces. The mortality incidence of the year 1910-1911 for the archipelago was 55 per 100,000; this in contrast to our admittedly disgraceful typhoid rate of 22 deaths per 100,000 in the United States. The prevention of beriberi lies in government control of the milling process of rice, enforcing an undermilled product, with a standard of .4% P_2O_5 requirement. A rice law similar to the corn law of Italy would enforce this requirement on all rice imported or milled locally. Rice for sale in places of retail or wholesale would have to come up to this standard. A fine and confiscation of polished rice, whether imported or for sale locally, would undoubtedly result in the desired quality of undermilled rice in the markets. The culture of rice having a white pericarp instead of red, will materially reduce prejudice against unpolished rice. The results obtained in a practical way among the scouts and in the government institutions in the Philippines, basing the measures on the assumption of polished rice as the cause of beriberi would seem to justify the enactment of a rice law.

DISCUSSION ON THE BERIBERI PAPERS.

DR. WILBUR, San Francisco. I feel that we must make a distinction between polyneuritis due to inanition and that due to infectious micro-organisms. It is particularly difficult for me to understand why on ship board a number of sailors and officers should all come down, within the space of a few days, with acute symptoms of beriberi, and even die within a day or two. Certainly one would expect if it is entirely due to food, that we would get much more scattered cases, rather than epidemic.

DR. JOHN M. SWAN, Canton, China. In the province of Canton, and more particularly in Canton, practically outside of the zone where beriberi is very prevalent, we had, in 1907, a very severe outbreak of beriberi in the military camps, east of the city. There were about 6000 troups, and during that spring season there were about 600 cases of beriberi, with a mortality of something like 20%. It has seemed to me, from my observations and experience at the hospital, that the use of polished rice is a pre-eminent factor in the etiology of beriberi. It occurs to me that I might give you the consensus of opinion taken in this connection by the Far Eastern Association of Tropical Medicine, a meeting of which was held in Hong Kong in February last, just before I left. The results of the work submitted to this meeting of the Far Eastern Association of Tropical Medicine have been such that we feel there is little question now as to the causation of beriberi. The question was whether it would be practicable or possible to overcome the difficulties which would arise in recommending laws or taxation, or the adoption of such measures by the different governments, as would control the product of this polished rice. Years ago we were very careful in handling these cases of beriberi. We supposed then that they were contagious; but in recent years, owing to more careful investigations, we have not isolated these cases, and we have never seen any indication of contagion.

DR. W. H. JEFFREYS, Shanghai, China: It is hard to accept the polished rice theory because of the fact that it does appear, apparently, epidemically. I am entirely convinced that the epidemicity is due to the fact of the use of certain brands of rice. Shanghai and Hong Kong are the places where beriberi is most pronounced in China. In St. Luke's Hospital we have paid a very high price for rice and have had a great deal of beriberi. Before the theory was established, we used to add dried beans to the diet as a regular thing, and that kept away beriberi more or less. I think the reason is self-evident. With the removal of the beans and a diet of white rice, beriberi used to break out almost like an epidemic in the ward.

DR. JUDSON DALAND, Philadelphia: Ten years ago none of us accepted the actual cause of this disease, but even then the relation of beriberi to rice was referred to. The majority then considered it of bacterial origin. We want to be very careful regarding diagnosis from the standpoint of etiology. At the same time, the epidemic phase, I do not think, is to be strongly considered in the face of the evidence before us. The polished rice theory seems to be conclusive. Recent experiments show undoubetdly that animals fed on polished rice lose weight, become paralyzed, and eventually die. If unpolished rice and other articles of diet are added, this is prevented. One of the most interesting things in the demonstration is that when you remove from rice certain substances usually connected therewith, the patient shows symptoms of polyneuritis. When you add these elements to the rice, the patient recovers from the symptoms. It seems to be connected in some way with metabolism. If in beriberi we have an example of an individual whose food supply depends entirely upon the carbohydrates contained in rice, and from it you subtract phosphorous, in consequence of which certain unknown changes take place in his body, by which we have polyneuritis, we have a condition closely approaching another which brings about neuritis, namely, inanition. Rice which has less than .4% of pentoxide should be looked upon as a prejudice to health, and those disposing of such rice should be dealth with accordingly.

DR. HENRY J. NICHOLS, Washington, D. C.: Dr. Wellman's experiment brought out one interesting point about this same phenomena—that this condition can be produced by the feeding of corn starch or molasses or cane sugar. The incubation period of these symptoms of paralysis in the chicken is much shorter than in man. Man will die of starvation before these symptoms are developed. Either on a diet of polished rice, or no diet at all, you have this same lack of phosphorous, or whatever it is. Cane sugar, or a thousand other things, might give the same results. I have no sympathy with Dr. Wilbur's suggestion as to the infectious theory. It seems to me that beriberi, as we have it in the East, is established as fully in connection with polished rice as scurvy is with the lack of fresh vegetables. I think we are only adding to the problem to keep harping on the infectious theory.

DR. R. H. CREEL, Ellis Island: In the Java possessions, containing a quarter of a million people, among whom there were 90,000 persons fed entirely on red rice, there were only nine cases of beriberi—one to every 10,000. Whereas in those persons fed on white rice there were 280 per every 10,000. It seems to me that this is most conclusive.

DR. JOHN M. SWAN, Rochester: In regard to the infectious nature of the disease, from my reading I have never been convinced of it. Many statements have been published in which beriberi and pellagra are said to be similar, but it seems to me that beriberi is more like scurvy.

DR. CREIGHTON WELLMAN, New Orleans: The fact that we have been able to reproduce a perfectly identical condition by feeding our fowls on cane sugar and starch, is possibly more significant than simply being a starvation, although I am very strongly inclined at present to the opinion that this polyneuritis galvanarium is likely an inanition condition, and I am not entirely convinced that it has anything to do with beriberi. The whole condition of beriberi, in my mind, is rather more unsettled than it was when we began these experiments. While it is true that the most of the evidence gotten together is in favor of the rice theory, still I would disagree with Dr. Nichols when he says we have no right to consider any other theory. Some facts should really be explained. For instance, I was asked to investigate an epidemic of beriberi in the Islands of the Gulf of Guam, where there were 30,000 cases. In some cases where no rice was eaten, I found a disease clinically undistinguishable from beriberi. In other cases, where what appeared to be polished rice was eaten, beriberi was much less prevalent than it was in the vicinity just referred to. Again, I think some of the anomalies of geographical seasonable distribution are not fully explained. The attacking of young, strong adults, too, is a question which is not clear in my mind. So far as the phosphorous contents of the rice is concerned, there are also objections to that, for instance, the so-called infantile beriberi. If one thinks physiologically one would expect these children to take the phosphorous out of their bones. The result would be very easy to see in the children.

DR. CREEL: If we are going to recognize the polished rice as causing beriberi, it is more logical to enact a rice law than it is to tax the rice.

SOME INVESTIGATIONS IN LEPROSY.

DR. CREIGHTON WELLMAN, New Orleans: I became interested in the therapy of leprosy several years ago, and I tried salvarsan in a series of cases of leprosy in California. The clinical findings I presented at our last meeting. I was not oversanguine about the results there obtained, but later I was interested to find—from the histo-biology of the cases—that something more than clinical amelioration, which might be attributed to the clinical effect of arsenic, might be demonstrated. Salvarsan is of great value in the early treatment of the disease. During the past nine months Dr. Duval and myself have been working on the cultivation of the bacillus of leprosy. We have recently come to the conclusion that the chromogenic acid—fast bacillus—first described by Clegg, is to be regarded as the etiological factor in leprosy. We have isolated from a leprous lesion a slow-growing, non-chromogenic bacillus, without the polymorphism of the Clegg bacillus, which, with two exceptions, can hardly be told from tuberculosis. First, it will not grow except upon a special medium, either in the beginning of isolation or in later transplants. It cannot be coaxed into saphrophytic media, but can grow only on special media.

This culture has been cultivated on a medium devised by myself. It is made by taking human placenta and infusing at refrigerator temperature for two hours. Human placenta at term is very rich in amido-acids before putrefaction has taken place. You have in this media a very close reproduction of the habitat of the leprous bacillus in infected tissue. We have aso succeeded in isolating pure cultures of tuberculosis from lesions, from sputum, from urine and from cerebro-spinal fluid within 72 hours. We have found placenta media very valuable. We can isolate, not only acid-fast organisms from leprosy, but the bacillus tuberculosis from lesions and exudates, and we believe it will prove of great value in bacteriology.

DISCUSSION.

DR. JUDSON DALAND, Philadelphia: If it turns out to be true that Dr. Wellman has found a bacillus that is the etiological factor in leprosy, this will be a remarkable and extraordinary step forward in our study of that disease. We are all acquainted with his remarkable co-worker, Dr. Duval. Therefore any statement that he makes is of interest to those who are working along this line.

DR. WELLMAN: By cross reactions done carefully and in great detail we believe that the non-chromogenic slow-grower and the Clegg chromogenic rapid-grower are very distinct from each other. We have tried to coax non-chromogenic onto other media. When isolated on this placenta media it grows luxuriantly, but if you dilute the placenta agar with nutrient agar, it stops growing. I do not say that the Clegg bacillus has nothing to do with leprosy, nor that the slow-growing non-chromogenic bacillus is the only factor, but we hope, by the next meeting, to complete our investigation so as to give you something more definite.

GANGOSA.

DR. G. L. ANGENY, Philadelphia: Gangosa has been prevalent in Guam for more than a century. It is destructive, showing ulcerations of the oral and nasal mucous membranes. It begins as ulcer of the nose, mouth or pharyngeal wall, with no pain or other symptom. The patient is not aware of its existence until the ulcer has reached considerable size. The process may advance until the bone is destroyed. The duration varies from a few months to many years. The general tendency is to recovery. Death is usually due to some intercurrent disease. The etiology is obscure. There are three theories: (1) Distinct entity; (2) tertiary manifestation of yaws; (3) hereditary syphilis. The entity theory is reached by exclusion. The theory that it is a tertiary manifestation of yaws has not been established. There is no evidence that it is due to syphilis or that it is transmitted by the sexual relation. The population of Guam is approximately 11,000, and 4% have gangosa. The administration of iodides and mercury is reported by one writer with 25% of cures. Mercury succin, in a large number of cases, produced no result.

DISCUSSION.

DR. WELLMAN: In California I had an opportunity to study some half dozen cases of what had been diagnosed as gangosa in the navy hospital at Mare Island. All the cases which I saw looked very much like lupus. There was one case, however, which I remember, in which the involvement of the hard palate was puzzling. At this time of which I speak, Dr. Garger had isolated a bacillus which he believed to be closely identified with gangosa, and by the use of autogenous vaccines he had effected an apparent cure of one or two of the worst cases. Cases which he treated with this autogenous vaccine had been treated for syphilis and grown steadily worse. The bacillus which Dr. Garger isolated was a diphtheroid. I was never able to draw any conclusion from my study of the bacillus, which extended over one summer, and I had no experience with the autogenous vaccines which had apparently secured such brilliant results with Dr. Garger. The fact that these diphtheroids are so easily isolated from any sore throat makes it probable that this bacillus of Garger is the etiological factor.

A MALARIAL HOTBED WITHIN SIGHT OF THE NATIONAL CAPITAL.

DR. THOMAS W. JACKSON, Fort Washington, Md.: I should like to call attention to the continued existence of malaria within fifteen miles of Washington. The disease continues to prevail annually, but in a greatly diminished degree, owing to improved sanitary condition and the extermination of the mosquito. The medical phases are: (1) Advisability of quinine prophylaxis; (2) the duration of the treatment period; (3) the cause and percentage of recurrences; (4) the management of civilian cases occurring near military stations; (5) anti-mosquito. Quinine prophylaxis has been disappointing; practically a failure. It is a false and dangerous doctrine.

DISCUSSION.

DR. DAMASO RIVAS, Philadelphia: My experience has been that it is very difficult to get patients to take the quinine faithfully, and that it is most efficacious to give it one hour after the temperature begins to fall. We know that at that time the parasite is very young, and is apt to take more quinine then than he will later. The doses are about ½ gr. to 7½ gr., always diluted with hydrochloric acid. In regard to the recurrences of malaria, unquestionably these are attributable to bad management, that is, giving quinine at the wrong time.

DR. WILLIAM KRAUS, Memphis: About a year ago I had a patient referred for the administration of salvarsan. On the day he arrived he had a chill. The result of the salvarsan was partial disintegration of rings—pseudo-autumnal form—and no subsequent paroxysm of this same fever. On the day following, however, the malaria became more active, but coincident with that there was the disappearance of parasites and since that time the patient has not had any further recurrence. It is possible that this remedy may have a differential effect, which is the very thing we have been unable to obtain with quinine.

DR. CHARLES CRAIG, Washington, D. C.: I am surprised that Dr. Jackson took so strong a stand about quinine prophylaxis. I do not think that it can be compared for a moment with mosquito extermination. Certainly, however, no one can doubt for a moment that quinine prophylaxis has had a great deal to do with the eradication of malaria. I believe Dr. Jackson's experience at Fort Washington is unfortunate. I had an experience at Fort

Stoltzenburg which was the opposite. Stoltzenburg is supposed to have the worst record for malaria of any post in the United States Army. We tried every way we could to exterminate malaria, and finally started on a thorough quinine prophylaxis. We had the patients come to the hospital twice a week, and made them take it in the presence of an officer. When we did that, the numerical ratio went down over 50%.

DR. JOHN M. SWAN, Rochester: I used to teach my students that it was necessary for them to administer quinine to their patients after their clinical recovery for at least two years. My reasons for teaching that was that I accepted the theory that the recurrences of relapses were due to parthenogenesis. There always seemed to me to be a parallel between this disease and another that I think is due to an animal parasite, namely, syphilis. We know well that after the clinical manifestations of syphilis are gotten rid of, it is necessary to continue treatment for a long period to prevent symptoms. I believe the administration of quinine will probably prevent relapses. Referring to the diagnosis of unique carriers by means of the microscope, I would like to recall to your mind a case I reported in 1910. A patient who reported being perfectly well, with a normal temperature and a normal picture in regard to red cells, differential leucocyte count, etc. In March, when there were no mosquitoes in the place, he had a case of a typical attack of malaria with the organisms in the blood. It is possible for a person with the parasites in the blood to present a perfectly normal blood picture until he relapses.

DR. JUDSON DALAND, Philadelphia: Two years ago I happened to have an opportunity of seeing a case which clinically had the same result as the one which Dr. Kraus reports.

DR. JOSEPH H. WHITE, President: I feel that proper prophylaxis demands not only the destruction of the mosquitoes and the destruction of the unique carriers, but also the use of quinine as a prophylaxis. Just one instance with regard to a unique carrier: Four years ago I was called up at midnight by a gentleman and asked if I would not go to a certain town where he thought he had found a case of yellow fever. I went, very much afraid of finding yellow fever, and looked the patient over carefully—I cannot say that he had malaria. I examined this man's blood for about an hour, taking two or three specimens, and got nothing. I went back and looked him over again, after being away two hours in the laboratory; found him with a rising temperature; took another specimen, and found organisms.

DR. JACKSON: I do not by any means condemn quinine prophylaxis generally, except that it could not be substituted for mosquito work. As to the results at Camp Stoltzenburg, I believe that where a certain procedure can be carried out effectively, year after year, anti-mosquito work is far more effective. The principal objection I have to the widespread, indiscriminate use of quinine is that it undoubtedly vitiated blood diagnosis. Under those conditions, you may frequently be badly put about for a diagnosis, when the quinine taken has been sufficient to drive the parasite from the peripheral circulation. As to the reaction, I do not think that any of us are in a position to lay down a dogmatic length of time over which medicine shall be given, but I think we often make the period too short. I have little fear of the drug quinine. I think we can use it, without fear of injury, over a long period of time. Usually our treatment is resumed and our blood researches are not kept up, and that is the very reason why we have recurrences year after year. I believe that the only guide we have is repeated examination of the blood.

The following resolutions were presented by DR. Craig:

Resolved, That the American Society of Tropical Medicine endorse the creation of a United States Comission for the Study and Prevention of Malaria.

Resolved, further, That Congress be called upon to appropriate funds for this purpose. Seconded and carried.

DR. RIVAS showed some microscopic pictures of lesions of leprosy cells.

The following papers were read by title:

"Pellagra in Hawaii, Report of a Case," by DR. E. S. GOODHUE, of Honualoa.

"Ulcero-Membranous, or Vincent's Angina," by DR. ELMER S. TENNY, Zamboanga, Mindanao, Philippine Islands.

"Tuberculosis Amongst the United States Troops Serving in the Tropics," by DR. ISAAC W. BREWER, Fort Niagara, N. Y.

The following were elected as officers for the ensuing year: President, Dr. Edward R. Stitt, Washington, D. C.; First Vice-President, Dr. Richard P. Strong, Manila, P. I.; Second Vice-President, Dr. Creighton Wellman, New Orleans, La.; Secretary, John M. Swan, Rochester, N. Y.; Assistant Secretary, Dr. Allen J. Smith, Philadelphia, Pa.; Treasurer, Dr. C. Lincoln Furbush, Philadelphia, Pa.

The next meeting will be held in Washington, D. C., in May, 1913.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.

The regular meeting of the Essex South District Medical Society was held at the Hotel Seymour Lynn, on Thursday evening, March 13.

DR. FRANKLIN S. NEWELL addressed the Society on

THE INDICATIONS FOR CESAREAN OPERATION.

The speaker emphasized the importance of recognizing the probable necessity of operation before the onset of labor. The value and the methods of pelvic measurement were given, with recognition of their limitations, since all measurements must be of the false pelvis rather than of the diameters of the pelvic canal proper. Methods of examination and matters which must be considered in each patient in determining any decision for Cesarean operation were considered. Conditions practically forbidding or contra-indicating Cesarean operation were discussed.

In the discussion which followed, answering inquiry of Dr. Reed, Dr. Newell described the method and gave the results of tests which had been made of scar tissue following uterine section.

Answering inquiry of Dr. Bennett, the speaker gave in detail method of treating patients with eclampsia and contracted pelvis, presenting views of the most eminent obstetricians, and his own method of treatment, citing cases which showed different conditions. The value of careful observation of

blood pressure, following the delivery, and recourse in many instances to liberal bleeding was considered in detail.

Dr. Mark W. Richardson, Secretary of the State Board of Health, spoke on

THE CARE AND CONTROL OF TYPHOID.

The general decline of typhoid was shown in statistics. The willingness of the State Board to cooperate with physicians in diagnosis and limitation of typhoid was pointed out, and a new device, known as "The Ox-Bile Outfit," was exhibited. A test-tube of ox-bile, with cotton pledget on a glass rod, will be mailed, in a double carrier, upon application by any physician, and upon its return the State Board will make proper examination and report. Dr. Richardson dealt with carriers, discussed the value of urotropin, and the great difficulty of controlling carriers, particularly intestinal carriers. Prophylactic treatment was thoroughly dealt with, the experiences of the U. S. Army and of large hospitals in the treatment of its nursing staff, were described, and a vaccine outfit furnished by the State Board of Health exhibited.

In the subsequent discussion the legal rights of local Boards of Health in the control of carriers were presented and the immediate effects in typhoid inoculation described.

Book Reviews.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D., (Yalen), Professor of Surgery in Cornell Medical College, New York; Consulting Surgeon to New York, Bellevue, St. John's and Christ Hospitals, Corresponding Member of the Société de Chirugie, Paris. Seventh edition, revised and enlarged, with 459 illustrations and 39 plates in monotint. Lea and Febiger. 1912.

In the preface Dr. Stimson says: "The principal additions to this edition have been made in connection with the subject of treatment, especially in that of old dislocations, and in respect to the operative treatment of recent fractures. . . Three new sections on some fractures of small bones of the hand and foot, and one on fracture of the external tuberosity of the femur, have been added. More than one hundred new illustrations from photographs and skiagrams, have been added."

The book is now a well made volume of more than 900 pages. Type impression, paper and pictures are excellent; the illustrations as a rule are well chosen and helpful. The arrangement of the subject matter varies but little from previous volumes. It would seem that every variety known of fracture or dislocation receives detailed attention; as a reference manual, the book is especially valuable.

Dr. Stimson is a man of ripe age, wide experience and mature judgment. He has lived to see many methods of treatment strenuously advocated, enthusiastically adopted, modified, and often abandoned for cause. In spite of this, his advice is sane and progressive in questions of treatment in general and the operative treatment in particular. For instance, in relation to open treatment of fracture of patella, a popular and necessarily dangerous procedure, he says, "The general practitioner, and even the occasional surgeon, is not only justified in using a non-operative method, but he ought to do so." Stimson himself had operated for this condition 250 times up to 1909. He justly condemns permanent sutures, and all methods which require drilling the bone; allows his patients to leave the hospital with posterior splint, plaster and crutches in about two weeks; cuts the dressing down in the middle in front and has it removed at night after a month; and in less than three months expects 90° flexion and the abandonment of all apparatus. He has not had infection in any of these 250 knee joints.

In fracture of the neck of the femur, Whitman's correction and abduction method does not appeal to him, except possibly "in relatively young and robust patients with fracture at or near the base of the neck." though further on he seems to admit that traction produces abduction, and that this in moderation (30-40°) is good. Since Whitman deliberately produces abduction and maintains it without traction, it is not quite obvious why Whitman's method should not be worthy of careful trial, even in old patients.

As a whole the book is admirable. Bibliography is extensively noted; treatment is described in detail. He is distinctly opposed to open treatment of simple fractures, unless the indications for it are unmistakable, definite and compelling. The volume will continue to hold its place as an admirable classic.

Safeguarding the Special Senses. General Advice Regarding the Use and Preservation of the Eyes, Ears, Nose and Throat. By Henry O. Reik, M.D., formerly Associate in Ophthalmology and Otology in the Johns Hopkins Hospital, etc. pp. 123. Illustrated. Philadelphia: F. A. Davis Co., 1912.

Dr. Reik has undertaken a practical and useful task in presenting from the point of view of an expert certain facts regarding the special senses and the care of the organs subserving them. Such a book as this should find an especially useful place among the laity as well as in the profession. In fact, the simplicity of style is such that persons of small medical training would find it entirely understandable. As a means of prophylaxis of many common and at the outset trifling affections the small volume should find an acceptable place. An index adds to its value.

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THE DEATH OF QUEEN ELIZABETH AND OF KING JAMES THE FIRST.

DURING the current week occur the anniversaries of the death of two English sovereigns, Queen Elizabeth and her immediate successor, James I.

The last illness of good Queen Bess apparently began with a cold which she caught at London in January, 1603. Partly recovering, she went to Richmond; but in the latter part of February was again taken ill and from that time grew steadily worse until the end. Always noted for her independence and obstinacy, the queen was evidently a very unruly patient. She declined medical treatment and refused all food but manchet bread and succory pottage. Lady Southwell, one of the maids of honor in attendance upon her majesty, wrote in her diary:—

"She kept her bed 15 dayes, besides 3 daies she sat upon the stole, and one day, being pulled up by force, stood on her feet fifteen hours. Her Majesty understood that Secretaire Cecil had given forth that she was madd; and therefore in her sickness did manie times say to him, 'Cicell, know that I am not mad.' And, although manie reports by Cicell's meanes were spread how she was distracted, myself nor anie that weare about her could never perceive that her speeches soo well adapted proved for a distracted mind."

The queen became rapidly emaciated. Under date of March 19, 1603, Beaumont, the French ambassador to the court of St. James, wrote to his sovereign:—

"Queen Elizabeth had been very much indisposed for the last fourteen days, having scarcely slept at all during that period, and eaten much less than usual, being seized with such a restlessness that, although she had no decided fever, she felt a great heat in her stomach, which obliged her every moment to take something to abate it, and to prevent the phlegm, with which she was sometimes oppressed, from choking her."

Thus the dauntless old lady struggled on against her growing infirmity, finally lapsed into recurrent unconsciousness, and died in coma on March 24, 1603, in her seventieth year. Beaumont writes of her end:—

"The Queen was given up three days ago; she had lain long in a cold sweat, and had not spoken. Yesterday, and the day before, she began to rest, and found herself better, after having been greatly relieved by the bursting of a small swelling in her throat. She takes no medicine."

The actual cause of Elizabeth's death is unknown, as no autopsy was performed. From the rather meagre, lay clinical history of her case, however, it seems likely that she died of anile broncho-pneumonia, though she may well of course have had some deep-seated organic malignant disease. Surely not the least characteristic or heroic aspect of her career was the stubborn fight which the indomitable queen made against her unwelcome malady.

Elizabeth was immediately succeeded by her nephew, James VI of Scotland, whose life, like Pope's, seems to have been one long disease. He was popularly supposed to have derived his infirmities from the circumstances attending the pregnancy of his mother, Mary Queen of Scots. He was, in fact, a backward child, not learning to walk until his sixth year. He was suckled by a drunken wet nurse. He had adenoids, with the high palatal arch, narrow fauces and typical facies associated therewith. He was easily affected by cold and damp, subject to catarrh, always blowing his nose; and his lungs, says Sir Theodore Mayune, one of the royal physicians "were often attacked by fluxion."

At an early age James lost all his teeth, from neglect, and thereafter formed the habit of bolting his food whole, which he did in inordinate quantities. Naturally he suffered much from biliousness, colic, flatulence, occasional jaundice, and habitual constipation, alternating with periods of diarrhea. He had hemorrhoids which bled almost daily. His legs, which were slender and poorly developed, were made still further unequal to the support of his large body by frequent attacks of arthritis.

King James was not only a glutton, but was also grossly intemperate in his use of alcoholic beverages. "In the matter of drink, he erred in

quantity, quality, frequency, time, and order. He drank beer, ale, Spanish wine, sweet French wine, white wine and muscatelle. He loved all sweet wines and hated all water and watery drinks." Naturally he suffered much from gravel, and sometimes passed friable calculi. He also had occasional hematuria. In view of these dietetic excesses, his famous diatribes against the use of tobacco seem all the more inconsistent.

Finally, on March 5, 1625, the king was seized with a so-called tertian ague. Evidently the diagnosis was in some doubt, for his physician, Lingard says, subsequently called the malady "gout in the stomach." James was as obstinate as Elizabeth in refusing medicine. Perhaps there may have been at their time a popular revulsion against the polypharmacy of the Tudor age, which may well have led Shakespeare to put in Macbeth's mouth the famous phrase, "Throw physic to the dogs, I'll none of it."

Whatever his malady, King James grew rapidly worse, and died on March 27, 1625, two hundred and eighty-eight years ago today. The manner of his death was as pious and full of godly edifying apophthegms as his life had been of excesses at the table. George Eglisham, one of the royal physicians, writes that before his death, "the King's body and head swelled above measure, his haire with the skin of his head stuck to the pillow, his nailes became loose upon his fingers and toes." There was a rumor that he had been poisoned, but this seems quite unfounded; the manner of his life would surely account for the symptoms of his last sickness. He finally lapsed into coma, and "ceased upon the midnight without pain."

The autopsy was performed on March 29. Joseph Mead states that "when his body was opened by the physicians, they found his heart of an extraordinary bigness, all his vitalls sound, as also his head, which was very full of braines, but his blood was wonderfully tainted with melancholy, and the corruption thereof supposed the cause of his death."

Another quaint account of the autopsy is found in a letter from Mr. William Neve to Sir Thomas Hollandem:—

"The King's body was disbowelled, and his heart was found to be great but soft, his liver freshe as a young man's, one of his kidneys very good, but the other shrunke so little as they could hardly find it, wherein there was two stones. His lites and gall black; judged to proceed of melancholy. The semyture of his heade so stronge as they could hardly breake it open with a chesill and a sawe; and soe full of braynes as they could not, upon the openinge, keepe them from spilling; a great mark of his infinite judgement."

With this naif statement, and the knowledge of his clinical history as it has been given, it seems fair to conclude that James probably died in uremic coma from chronic cardio-renal disease. The items about his abundance of brains, and the admiration excited thereby, seem peculiarly amusing. Perhaps, taken in conjuction with the known facts about his habits of life, they may be held to justify the statement of his tutor, George Buchanan, that King James I was "the most learned fool in Europe."

EXTERMINATION OF THE RAT.

THE idea of civic spring cleaning is in the air. A most important item in such housecleaning is rat extermination, for this pest, while occasioning an enormous economic loss to civilization, is a serious menace to health. A crusade against the rat is reported to be under way in Washington; the Housewives' Leagues of New York City is contemplating the like; and it is to be hoped the movement may become national. If things have not changed very materially in the Mississippi Valley since Mark Twain wrote "Huckleberry Finn," that region would seem in great need of an anti-rat campaign.

Besides householders, the Metropolitan Retail Grocers' Association, storekeepers, restaurant and hotel men, and tradesmen generally are anxious for rat riddance Mrs. Julian Heath, the President of the Housewives' League in New York, City describes the conditions of things in a single market, which is so overrun with rodents that dogs and cats have to be maintained for their destruction, else the rats would take entire possession of the market. "And of course it is not pleasant to know that the places from which our food comes are infested with rats and with other animals retained to drive them out." The League first sought to exerminate the store cat, which likes to sleep on sugar barrels or on vegetables; but the storekeeper declared he had to keep the cat for destroying the rat. The League believes both cat and rat should go, and that the ferret should do the cat's work. Housekeepers who keep their foodstuffs properly covered do not have rats.

It is really startling to consider how prolific

the rat is. Were it not for the law of the survival of the fittest, and that other law of nature by which sentient things are constantly preying on one another, the rat would within a few years make the globe absolutely uninhabitable for man. The female has three or four litters a year, beginning to breed when they are four or five months old. The average litter is ten, but it oftentimes numbers fourteen or more. It is consequently estimated that a single pair, breeding without check or life losses, three litters of ten a year, would soon have a progeny numbering upwards of twenty millions. The roof or Egyptian rat usually infests ships; and is more common along our coast, especially in the South. The brown rat is the inland pest, destroying more property than all other noxious animals combined. "If for each cow, horse, sheep and hog on the farm of the United States our farmers support one rat on grain, the toll levied on the cereals by these rodents would reach one hundred million dollars a year"; so states the Farmer's Bulletin 297 of the Departmen of Agriculture at Washington.

Both rats and mice are probably much more frequent disseminators of disease than is generally accounted. Rats seem to have been almost entirely responsible for the propagation of bubonic plague from port to port. "They have brought forth from their sunless and foul hiding places the germs of typhus and typhoid fever, and no doubt also of tuberculosis."

In Chicago stock yards hogs have been seen to catch and eat rats, and rats to devour the tainted, diseased flesh of the hog; there must in such circumstances be a mutual transference of trichonosis. Rodents, again, are very susceptible to hydrophobic infection; their bite would seem capable of transferring the rabies virus.

Rats may be destroyed by poison, traps, ferrets and fumigation. Barium carbonate and strychnine are the most useful poisons. Traps are very effective if persistently used; the "guillotine" or "breakback" trap, made entirely of metal, is perhaps the best. Ferrets and dogs are useful, but only when employed by persons experienced in handling them. In fumigation a wad of cotton saturated with carbon disulphide is pushed into the burrow, and the opening closed with soil to prevent the escape of gas. This method is, of course, not available in dwellings. Preparations containing hydrocyanic acid gas have been used, the result being loss of human life.

The rat is after all an indicator of unhygienic conditions, of filth and of putrescence; he is oftentimes, under civic conditions at least, one of nature's scavengers. Rats, unless they would starve, must necessarily desert houses properly constructed, well-drained and clean from the foundations, for places more congenial to their alimentary needs. In cities the careful screening of the entrance to sewers and the stopping of all holes in the floors and walls of houses should, in addition to the measures stated, form a part of the sanitary movement which seems now to be in progress throughout the United States.

THE ETIOLOGIC ORGANISM OF POLIOMYELITIS.

IN the issue of the *Journal of the American Medical Association* for Feb. 1, 1913, (Vol. lx, p. 362) Flexner and Noguchi made a preliminary report on their experiments in the cultivation of the virus of poliomyelitis. Employing the method and media successfully used by Noguchi in the cultivation of spirochetes, the authors made cultures, both with Berkefeld filtrates and with tissues in substance from the brain and spinal cord of human patients, dead of epidemic poliomyelitis, and of monkeys the subjects of the experimental disease. The minute anaerobic colonies thus obtained were found to consist of globular or globoid bodies averaging from 0.15 to 0.3 micron in diameter. They occur single, and in pairs, chains, or masses. In older cultures involution forms were observed. The organisms stain a pale reddish-violet with Giemsa's solution. With these cultures, two series of monkeys were inoculated and developed typical experimental poliomyelitis, with the characteristic pathologic findings at autopsy. From their nervous tissues other monkeys were successfully inoculated with the disease and the same organism was recovered in pure culture.

These experiments demonstrated that a filterable virus is not necessarily an ultra-microscopic organism. It seems highly probable that they also isolated the etiologic agent of poliomyelitis. It was not yet, however, definitely proved that the transmission of the disease might not be due to the carrying over, with the cultures of the globoid bodies, of a quantity of the original virus sufficient to cause paralysis in the inoculated monkeys. A third series of experimental inoculations of later generations of the cultures

was therefore instituted to exclude this possibility.

A recent press report from Baltimore stated that the successful completion of this final series of experiments was announced by Dr. Flexner at the Johns Hopkins Hospital on March 14. If this be true, it would appear that the organism of poliomyelitis has at last been isolated and described. The publication of a further official report may be expected from Dr. Flexner. Meanwhile, it seems probable that he and Noguchi have really demonstrated the true cause of poliomyelitis, thereby adding not only to their own important achievements as investigators, but to the deserved credit of American scientific research.

The etiologic and the transmitting agent of poliomyelitis being both known, further experiment should develop effective means for the prevention and treatment of the disease.

MEDICAL NOTES.

Prizes for Essays on Diabetes.—It is announced that one or more prizes have been offered by the Society of Karlsbad Physicians for essays on "The Treatment of Diabetes Mellitus, with Special Reference to Balneotherapy."

"The jury will be Hofrat Professor Dr. Ritter v. Taksch, of Prague; Professor Dr. Luethje, of Kiel; Professor Dr. Ortner, of Vienna; Professor Dr. Schmidt, of Innsbruck; and Dr. Edgar Ganz, President of the Society of Karlsbad Physicians. It remains optional with the judges to award either one prize of 5000 kronen, or two prizes of 3500 kronen and 1500 kronen, or three prizes of 2500 kronen, 1500 kronen, and 1000 kronen. The competition is open to physicians of all countries. Any language may be used. The essays must be presented by Dec. 31, 1913. Any further information may be obtained from the Society of Karlsbad Physicians in Karlsbad."

A British Centenarian Veterinary.—Mr. W. Allison, a veterinary surgeon, who died recently at Harrowgate, England, is said to have been born on Dec. 4, 1812.

A Centenarian Rabbi.—Rev. Abraham Isaac Trager, a rabbi who died recently at Charleston, S. C., is said to have been born in 1807 in Russia. He migrated to New York in 1850. He is survived by two aged daughters, 23 grandchildren, and 30 great-grandchildren.

Three Living Centenarians and Their Habits.—John Munsinger, of Howard, Kan., is said to have been born on Dec. 14, 1812, and to have already 144 living descendants. He attributes his excellent health to his moderation in all things. He has never tasted alcoholic beverage, but has smoked tobacco temperately for the past 80 years.

Charles Weidner, of Sparkhill, Rockland County, N. Y., is said to have been born on March 14, 1811. He can still read without glasses. He eats sparingly, and never uses alcohol or tobacco.

Jean Boudin, of Toronto, Canada, is locally reputed to be 122 years old. He has one living great-granddaughter. His longevity he ascribes to a diet of baked apples, brown bread, and boiled milk. He drinks no alcohol, but smokes tobacco freely.

Birth of Quadruplets.—An unauthenticated report from Scarsdale, N. S., on March 16 states that Mrs. Eisenhauer of that town has recently given birth to quadruplets, three girls weighing six pounds each, and a boy weighing 5½ pounds. Allowing 1½ pounds for the weight of the placenta, this would make a total uterine content of 25 pounds, which seems almost incredibly large.

Dedication of Tuskegee Hospital.—The new John A. Andrew Memorial Hospital at Tuskegee, Ala., erected at a cost of $55,000, has recently been completed and dedicated.

"The hospital is a two-story brick structure and is located west of the old hospital. In plan, it is in the shape of the letter 'E.' The site on which it stands is one of the high points on the school grounds and overlooks almost the entire campus.

"The outside dimensions are 90 by 136 feet, the three wings, or stems of the 'E,' projecting on the rear. On the southwest, or main side, is a one-story porch 10 feet wide and 82 feet long, supported by cement columns. The roof of this porch is flat and built of reënforced concrete to permit using it. The main feature of the front is a colonial porch 14 feet wide, supported by four large cement columns extending the full height of the building and supporting a gable roof. Over the column is a carved stone giving the name of the building.

"The main entrance to the building is from this porch through wide double doors into a hall 8 feet 6 inches wide. This hall leads to the kitchen and dining-room. At the centre of the

building, the entrance hall intersects another hall 8 feet 6 inches wide at right angles. The entrance hall contains a commemorative bronze tablet.

"The first story contains the offices for the medical director and internes, an emergency ward, laboratory, classroom, nurses' rooms, girls and boys' convalescent and detention wards, bedroom for internes, x-ray room, diet kitchen, girls and boys' waiting-room, drug room, kitchen, dining-room, pantry, toilets, closets, etc.

"The second story contains large girls and boys' surgical and medical wards and four private wards, two of which have private bathrooms, bedroom and sitting-room for the head nurse, children's ward, maternity wards, diet kitchen, operating-room, sterilizer-room, recovery room, anesthetizing-room, toilet-rooms, linen closets, etc.

"The basement contains a large storage room for furniture, medical supplies, etc. Not including the hall, the building contains fifty rooms, the basement containing one, the first story twenty-three, and the second story twenty-six. Generous space is provided for fifty-three beds, sixteen on the first story and thirty-seven on the second story. This does not include the bedrooms which have been provided for the head nurse, assistant head nurse and internes.

"A passenger elevator, five by seven feet, is provided and a dumb waiter for carrying food to the second floor. Two wide stairways lead from the first to the second story. Wide porches are provided on all sides of the building, the roof being flat and made of concrete, as described for that on the front.

"The building is constructed of brick with artificial stone trimmings. The roof is covered with slate. The interior finish is yellow pine, except the floors, which are of birch. The floors of the halls, kitchens, and bath-rooms are terrazzo. The operating-room, sterilizing-room and anesthetizing-room have tile floors and tile wainscoting; other floors are rift yellow pine and maple. A silent nurses' call system, operated by electricity, has been installed, and a complete x-ray apparatus. The building is lighted throughout by electricity, and heated by steam. Modern sanitary plumbing has been installed throughout in bath-rooms, kitchens, etc.

"The aim has been to make the building thoroughly sanitary and to this end mouldings have been omitted, sanitary doors, glass, hardware, and other hospital fixtures and furniture have been used. The walls are finished in hard wall plaster and painted in such a way that they can be washed without injury to the paint. Architecturally, the building is designed in the colonial style and in harmony with the other large buildings on the school grounds. The building is largely the result of students' work from the digging of the clay, the making and laying of the bricks to the installation of the electrical work, the plumbing and steamfitting."

The hospital is the gift of Mrs. Elizabeth A. Mason, of Readville, Mass.

RELICS OF DR. EDWARD JENNER.—Among other historical medical objects of exceptional interest that have been secured for the Historical Medical Exhibition, organized by Mr. Henry S. Wellcome, and which will be opened in London during the meeting of the International Medical Congress in the coming summer, are many personal relics of Dr. Edward Jenner, the discoverer of vaccination. These include the original lancets and scarifiers he employed during his first experiments, his case and account books, his snuff box, medicine chest and many other interesting articles. A large collection of autograph letters of Jenner's, some of unique interest, have also been loaned, together with the armchair from his study and in which he died. Other objects connected with the life of Jenner are also to be exhibited, including many valuable portraits of himself and family, painted at different periods, the illuminated addresses presented to him, together with the freedoms of the cities of London and Dublin, also medals, and other documents of special interest.

Concerning the history of anesthesia, many interesting relics are to be exhibited beginning with the original autograph journal and manuscripts of Henry Hill Hickman, F.R.C.S., the discoverer of the application of the principle of *anesthesia by inhalation for surgical operations*, which he proved by actual experiments on animals in 1823. Personal relics of Sir James Simpson, and some of the earliest forms of apparatus for administering chloroform and ether will constitute an exhibit of more than usual interest.

Those who may possess any objects of a similar character connected with the history of medicine and the allied sciences, and who would be willing to loan them, should communicate with the Secretary, 54a Wigmore Street, London, W., England, who will be pleased to forward a complete illustrated catalogue to anyone interested.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The spring meeting of this Society was held at the Coates House, Kansas City, March 20, 21, 22, with the third day devoted entirely to clinics in the various hospitals. The Jackson County Medical Society was the host, and a committee of arrangements was appointed, comprising Drs. H. E. Pearse, R. L. Sutton and E.

G. Blair. A symposium on cancer, a dinner at the Coates House, and an address by Surgeon-General Rupert Blue were features of the first day.

An Adult Parthenogenetic Female Frog.—On Feb. 28, a reception was given by the Manhattan Medical Society, New York, to Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, at which he spoke on "Some Recent Experiments in Artificial Parthenogenesis." He is reported to have stated that a female frog, thus produced from an artificially fertilized egg, had reached adult life and, on examination after accidental death, had been found to have normally developed organs throughout, including ovaries containing apparently normal ova.

A Heavy Woman.—Melissa Cooper, a negress, who died on March 15, at Grayson, Gwinnett County, Ga., is said to have weighed 613 pounds at the time of her death. Presumably some pituitary lesion accounted for this phenomenon.

An Expedition to the Amazon.—On March 19 the steam yacht *Pennsylvania* sailed from Philadelphia on a three years' trip of exploration up the Amazon River. Dr. Franklin Church, of New York, is physician to the party, and will make a special study of tropic disease. The expedition is sent out by the University of Pennsylvania.

Stanford University Medical School.—The clinical and laboratory building of the Stanford University Medical School at San Francisco, formerly used by Cooper Medical College, has recently been remodeled at a cost of about $40,000.

"The lower floor of the building is devoted entirely to the surgical out-patient clinic, the surgical specialties and the history room and drug store, the second floor to the medical out-patient clinic and the clinics of pediatrics, neurology and dermatology. The three upper floors are devoted to the pathological museum and the laboratories of experimental medicine, pathology, pharmacology and experimental surgery. Reading rooms have been provided for the students in close connection with the clinical laboratory. This laboratory and the out-patient department are separated by only a short corridor from the clinical wards of Lane Hospital so that both in- and out-patient material is equally available for purposes of teaching. The front part of Lane Hall has been converted into a modern amphitheater suitable for demonstrations. About 12,000 patients were received by the out-patient department during the past year, with a total number of visits of over 60,000."

Assassination of King George of Greece.—The assassination of the King of the Hellenes on March 18 at Salonica by a feeble-minded fanatic brings a brilliant, diplomatic, and successful reign to an untimely though dramatic end. The king died within a few moments of hemorrhage from a gunshot wound of the heart. Like his father, the late King Christian of Denmark, King George was strongly democratic in his habits, and was idolized by the people. He died by "one of the risks of his trade,"—to use King Humbert's phrase—but that does not at all mitigate "the deep damnation of his taking off."

BOSTON AND NEW ENGLAND.

Massachusetts Homeopathic Hospital.—The recently published forty-third annual report of the Massachusetts Homeopathic Hospital records the work of that institution for the calendar year 1912. During this period 6007 patients were treated in the wards of the main hospital; and to the out-patient department 12,144 patients made 40,850 visits. The externes made 7445 visits and the nurses 6297 visits at patients' homes. In the Haynes Memorial 270 cases of contagious disease were treated, and 850 children at the Clark ward. From the training-school 27 nurses were graduated.

Danvers State Hospital.—The recently published thirty-fifth annual report of the trustees of the Danvers State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period 985 male and 1177 female patients have been under treatment in the hospital. Of these, 66 were discharged as recovered. Death occurred in 169 cases, in 80 of which complete autopsies were performed. From the training-school 14 nurses were graduated. A special appropriation of $45,000 is needed for the erection and equipment of a suitable building for male attendants and married couples now housed in attics and hospital wards.

Pure Food Fines.—Before the Boston Municipal court last week 18 defendants, dealers in this city, were fined sums aggregating $265 for

various violations of the pure food laws, chiefly in regard to the sale of milk, butter and vinegar.

HART HOSPITAL TRAINING SCHOOL.—The third annual graduation exercises of the Hart Hospital training school were held last week in Roxbury. Dr. Harold W. Baker, of Boston, presented diplomas to five pupil candidates.

RECENT HOSPITAL BEQUESTS.—The will of the late Freeman Ballard Shedd, of Lowell, Mass., who died recently in Miami, Fla., was probated at Lowell on Mar. 17. It contains a bequest of $100,000 to the Lowell General Hospital, which is also a reversionary legatee of the estate.

The will of the late Helen M. Turner, of Brookline, Mass., which was allowed on Mar. 19 in the Norfolk probate court at Dedham, Mass., contains bequests of $1000 each to the Boston Floating Hospital and to the Industrial School for Crippled and Deformed Children, Boston.

NEW ENGLAND BAPTIST HOSPITAL.—The recently published nineteenth annual report of the New England Baptist Hospital records the work of that institution for the calendar year 1912. During this period a total of 778 patients received 12,776 days of treatment in the hospital, and 9 nurses were graduated from the training school. The completion and occupation of the new bungalow and the installation of electric light during the year have added notably to the comfort and efficiency of the hospital. A larger proportion of free service to the poor has been rendered than in any previous year of the institution's history.

APPROPRIATION FOR CONSUMPTIVES' HOSPITAL.—In their recent report, the trustees of the Boston Consumptives' Hospital, Mattapan, Mass., recommended an appropriation of $125,000 for the construction of a new hospital pavilion and two cottage wards. The president of the Boston Association for the Relief and Control of Tuberculosis, in a public letter to the Mayor, supports this recommendation as follows:—

"In the latest report of the trustees, attention is called to the fact that there are about 500 patients suffering in their homes with tuberculosis in a sufficiently advanced stage to call for hospital care. The Mattapan Hospital is full, as are also the 100 beds which the trustees are allowed by law to hire for the use of city patients. Legislation has been passed which prohibits the trustees from hiring beds in private hospitals after the year 1916, so that it seems eminently desirable that some permanent provision should be made before that time."

NEW YORK.

SPRING HOUSECLEANING.—Some time ago, in a letter to Mayor Gaynor, Health Commissioner Lederle proposed a "spring housecleaning" for all of Greater New York, and the mayor promised the active co-operation of the various city departments. The commissioner now announces that he has detailed Dr. M. B. McMillan, Assistant Sanitary Superintendent, who when an army surgeon had charge of the "cleaning up" of the central portion of Cuba, to take personal direction of this campaign for a cleaner city and the reduction of mortality. In this he will have the assistance of the Babies' Welfare Association, the Charity Organization Society, and many other societies, in addition to the city departments, and he also solicits the voluntary co-operation of all citizens. The first meeting of the central controlling committee, of which Dr. McMillan is executive officer, was held at the offices of the Health Department on March 14, and it was decided to appoint an executive committee in each of the boroughs of the city, with the borough president as chairman.

RECENT HOSPITAL BEQUESTS.—Under the will of the late Ferris Thompson of New York, bequests amounting to about $3,000,000 are left to Princeton University. Among other bequests are $200,000 to Mercy Hospital, Chicago; $155,000 to St. Luke's Hospital, New York, on the death of certain beneficiaries of trust funds; $25,000 to the Woman's Hospital, New York, with $70,000 additional on the death of certain beneficiaries; a like sum to the American Hospital, Paris; $10,000 to the New Bedford Anti-Tuberculosis Sanitarium; and two-fifths of his mother's estate (amount not stated) to the New York Skin and Cancer Hospital.

HARVEY LECTURE.—The last lecture of the current series before the Harvey Society will be delivered on Saturday evening of this week, March 29, at the New York Academy of Medicine, by Professor John Howland, of Johns Hopkins University, on "The Scientific Basis for the Artificial Feeding of Infants."

LEGAL RESPONSIBILITY FOR TYPHOID.—Report from Rochester, N. Y., states that a resident of that city has recently been awarded $475 on the

second trial of his action to recover damages from the municipality on account of an attack of typhoid fever which he alleged was due to impure drinking-water.

"Negligence on the part of the city was averred in the removal of a check valve. As a consequence, the river water polluted the supply of drinking water, which is drawn from Hemlock Lake. The city will probably take an appeal, as ten other damage suits are based on the same evidence. If the first verdict is affirmed, then a settlement of the other cases may be attempted.

"So far as is known, this case is the first in which a verdict for the plaintiff has been given because of typhoid fever resulting from polluted water supply. Other similar cases are pending in the Ohio courts. The decision in the Rochester case will be important if the higher courts allow the verdict to stand as a precedent."

Current Literature.

Medical Record.

March 8, 1913.

1. Eccles, R. G. *The Scope of Disease.*
2. Sutter, C. C. *Ulceromembranous Angina (Vincent's) and Its Treatment; with Report of Cases.*
3. Mittendorf, W. K. *Gonorrheal Ophthalmia Treated with Gonococcus Vaccines.*
4. Park, F. E. *Thorium-x in the Treatment of Pernicious Anemia, with Report of Case.*
5. *McCord, C. P. *The Rationale of the Use of Adrenalin in the Treatment of Asthma.*
6. Gordon, A. *A Study of Fourteen Cases of Alcoholism in Children Apparently Free from Morbid Heredity.*
7. Barnes, F. H. *The Necessity of Early Institutional Treatment in Mental and Nervous Diseases.*

5. McCord discusses the literature of adrenalin therapy in asthma. He finds that this drug has a transient but powerful effect on the bronchioles, relieving the spasmodic contraction of the attack. This dilator action is observed whether the drug is administered subcutaneously, intravenously or endobronchially. The effect is most transient when it is given subcutaneously. No injurious results follow the use of adrenalin in asthma. [L. D. C.]

New York Medical Journal.

March 8, 1913.

1. Morse, J. L. *Infant Feeding.*
2. Pedersen, V. C. *Urethral and Peri-urethral Lithiasis.*
3. Cunningham, W. P. *Scleroderma Insulatum.*
4. Maverick, A. *Indurative Headache.*
5. Powell, T. *The Metamorphosis of the White Blood Corpuscle.*
6. Herrman, C. *Teething as a Cause of Disease in Infancy.*
7. Garrison, F. H. *The History of Blood-letting.*
8. Duncan, H. A. *Postoperative Dilatation of the Stomach.*
9. Skillern, P. G., Jr. *Cultivation of Bacillus Typhosus from a Spot in a Luetic Typhoid Subject after the Fastigium.*
10. Sitzer, E. H. *Infection of the Genitourinary Tract by Micrococcus Catarrhalis.*

The Journal of the American Medical Association.

March 15, 1913.

1. *Deaver, J. B. *Review of Five Hundred and Thirty-Four Operations on the Mammary Gland.*
2. Belfield, W. T. *Skiagraphy of the Seminal Ducts.*
3. Bassler, A. *Two Uncommon Esophageal Cases.*
4. Bishop, L. F. *The Prevention of Arteriosclerosis and Heart Disease in Otherwise Healthy Individuals Past Middle Life.*
5. Overlander, C. L. *Medical Practice in the Canal Zone.*
6. *Blatteis, S. R., and Lederer, M. *An Analysis of Four Hundred and Twenty-Six Cerebrospinal Fluids from Various Pathological Conditions.*
7. Colliver, J. A. *A New Preparalytic Symptom of Poliomyelitis.*
8. Chisholm, A. S. M. *Some Features of the Theory and Practice of Medicine During the Seventeenth Century.*
9. Dubois, P. L. *Differential Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis.*
10. Milne, L. S. *An Unusual Case of Leukemia.*
11. Abramovitz, M. *A Combined Gravity and Syringe Method for the Intravenous Injection of Salvarsan.*
12. Oliver, P. *A Case of Pseudohermaphroditism.*
13. Salzer, M. *A New and Inexpensive Intratracheal Insufflation Outfit.*
14. Sheahan, F. J. *Anuria—Perhaps Hysteric.*
15. Edwards-Schenck, W. *A New Tonsillectome.*
16. Hirsch, D. I. *Irrigation of the Spinal Canal as a Preliminary to Introduction of Flexner's Antimeningitic Serum.*

1. Deaver states that the death rate from cancer has risen from 47.9 per hundred thousand in 1890 to 73 per hundred thousand in 1907. In breast cancer an antecedent mastitis is present in from 30 to 39% of cases. Benign tumors are said to constitute only 11% of breast tumors. With our knowledge of precancerous states, we must consider trauma and inflammation as factors predisposing to cancer through the destruction of the normal fibro-epithelial relationship. Operation should always be advised at the very onset of the trouble. To wait for obvious signs of cancer causes delay until a stage when the disease is very likely to become inoperable. Pain is not an initial symptom of operable cancer. The opportune time for surgery in breast cancer is in the presence of a symptomless, freely movable tumor, without glandular metastasis. The upper outer quadrant of the breast is most often involved. Palpably enlarged axillary or supraclavicular lymph nodes in the presence of a mammary growth do not necessarily, however, mean carcinomatous involvement. About one patient in five is cured permanently by the radical operation.

6. The authors, studying the cerebro-spinal fluids in 426 specimens, draw the following conclusion: Turbidity of the fluid, when not due to the presence of blood, means an acute infection of the cerebro-spinal system, and bacteriologic examination reveals the organism. Rarely, however, chronic inflammation or tuberculosis gives a turbid fluid. A clear fluid, with failure to reduce Fehling's solution, a positive globulin reaction, and abundant lymphocytosis, usually means tuberculosis. Cases of intestinal auto-intoxication, with meningeal symptoms, may yield fluids chemically and cytologically resembling that of tuberculosis. In cerebro-spinal syphilis one may ob-

tain a positive complement fixation test, when the blood serum gives a negative reaction. The presence of blood renders the fluid valueless for chemical and cytologic study and may interfere with the bacteriologic examination. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

FEBRUARY, 1913.

1. *ROWNTREE, L. G., FITZ, R., AND GERAGHTY, J. T. *The Effects of Experimental Chronic Passive Congestion on Renal Function.*
2. *VON ADELUNG, E. *An Experimental Study of Poison Oak.*
3. *HERRICK, W. W. *Experimental Eosinophilia with an Extract of an Animal Parasite. Its Relation to Anaphylaxis and Certain Clinical Problems.*
4. *ADLER, H. M. *Unsaturated Fatty Acid as a Neurolytic Agent.*
5. HALL, M. C., AND MUIR, J. T. *A Critical Study of a Case of Myiasis Due to Eristalis.*
6. EYSTER, J. A. E., AND MEEK, W. J. *The Interpretation of the Normal Electro-cardiogram. A Critical and Experimental Study.*

1. Rowntree, Fitz and Geraghty produced chronic passive congestion of the kidney in dogs, in order to study its effect on renal function, and used the same functional tests (phenolsulphonephthalein, lactose, salt, potassium iodide and water) in a large number of cardiac, cardio-renal and renal cases. They find that albuminuria is an almost constant accompaniment of experimental passive congestion, casts are usually present, and red blood cells appear if the congestion is considerable. Lactose excretion is the first to become affected by increasing grades of chronic passive congestion, that of phthalein the last. The phthalein test gives the most reliable information concerning the degree of renal insufficiency. A marked decrease in phthalein excretion has invariably been associated with the development of clinical manifestations indicating renal inadequacy, and followed by death. The phthalein test is, therefore, the test of greatest prognostic importance in chronic passive congestion. Lactose is of the greatest diagnostic value.

2. von Adelung reports on an experimental study of poison oak, poison ivy and poison sumach. These three plants differ botanically, but their juices seem to be chemically identical and the dermatitis caused by them clinically identical. The toxic principle of rhus, while non-volatile, can poison at a distance by means of mechanical carriers. It is not destroyed by a temperature of 100° C., and is carried, potent, by the smoke from burning rhus plants. The dermatitis is purely a local affection, and is not spread by the blood or lymph, or by the serum of the blebs. Absolute immunity in man is improbable, and experimental immunity in animals is not yet demonstrated. A permanent aqueous suspension of the alcoholic solution of the toxin can be prepared and remains toxic. As animals cannot be killed by the pure toxin it is impossible to demonstrate antitoxic effect by the serum of animals that have received repeated doses of the toxin. The writer was unable to demonstrate antibodies in the sera of animals so treated. The simplest prophylactic measure against rhus poisoning is to wash well with soap and hot water as soon after exposure as possible. The use of cotton-seed oil on the skin before exposure renders prophylaxis fairly certain; it should be washed off within a few hours. For treatment, ichthyol collodion, potassium permanganate, magnesium sulphate and tincture of iodine are of value.

3. Herrick, in experiments on guinea-pigs, studied the relation of eosinophilia to intestinal parasites, bronchial asthma, anaphylaxis and other clinical problems. He was able to produce a notable eosinophilia of the blood by the intraperitoneal injection of an aqueous extract of Ascaris lumbricoides. The substance causing eosinophilia he proved to be a protein, for when the extract was made protein free the filtrate injected into guinea-pigs previously sensitized with the original extract had no influence on the eosinophiles of the blood. Previous sensitization is always necessary to the development of this eosinophilia, and it is impossible to produce it while the animals are immune to the extract.

4. Adler reports some experiments undertaken to study the effect of unsaturated fatty acid on nerve cells. In five cats, injections were made into the brain; in two oleic acid was used, in three triolein. Oleic acid is hemolytic, triolein is not. They find that unsaturated fatty acid, of which oleic acid is the type, is a neurolytic agent. This action probably depends on the same properties as the hemolytic action of these substances. Perivascular proliferation may be associated with pathological processes in which lytic fatty substances play an important part. An intracerebral hemorrhage may be produced experimentally without altering the blood-pressure and without trauma by chemical action alone. [L. D. C.]

THE LANCET.

FEBRUARY 15, 1913.

1. *WALKER, K. M. *Hunterian Lecture on the Paths of Infection in Genitourinary Tuberculosis.*
2. OWEN, E. *Appendicitis: A Plea for Immediate Operation.*
3. *WHOLE, H. *The Remote Results of Tonsillotomy and Tonsillectomy: An Analytical Scrutiny of Two Hundred and Twenty Unselected Cases.*
4. EDMUNDS, A. *An Operation for Hypospadias.*
5. LANGMEAD, F. *On a Case of Addison's Disease in a Boy Aged Ten Years.*
6. RISCHBIETH, H., AND DRCHRISTIONY, C. P. C. *Polycystic Disease of Kidneys: Remarkable Persistence of Functions in Two Cases in Adults.*
7. RAE, J. *Note on a Case of Chronic Internal Hydrocephalus.*
8. BARRATT, J. O. W. *The Action of Sharlach R upon X-rayed Skin.*

1. Walker, in the Hunterian Lecture, first considers tuberculosis of the testis. This is almost always a secondary lesion to a process in lungs, glands or elsewhere. It is also usually secondary to an earlier process in the prostate, and thus represents a descending infection in which the epididymis is the part first affected. He discusses the experimental and post-mortem evidence on which these assertions are based. Tuberculous disease of the testicle is analogous to acute infections which are known to have been produced by extension from the urethra.

As to the paths of infection of the prostate, the organ most frequently attacked by tuberculosis of the genitourinary tract, he believes that examples of infection by the blood stream, by direct extension, by infection from the urethra, and through the agency of the urine are all often met with. He discusses these various modes of infection. He believes that in cases of tuberculous infection there is apt to be found a condition of abnormal permeability of the kidneys, which in part accounts for the frequency with which the genitourinary tract is attacked.

3. Whole, discussing the relative merits of tonsillotomy and tonsillectomy, concludes that the latter is the more dangerous operation, but with the single exception of voice troubles it is more likely to permanently cure the complaint for which advice is sought, especially in tonsillitis or lymphadenitis. [J. B. H.]

FEBRUARY 22, 1913.

1. ZODLEE, R. J. *The Hunterian Oration.*
2. *MCINTOSH, J., AND TURNBULL, H. *Transmission to Monkeys of Virus Obtained from English Cases of Poliomyelitis.*

3. Cholmeley, W. F. *Two Cases of Pancreatic Cyst.*
4. Frankaw, C. *Two Cases of Pancreatic Cyst with Acute Symptoms.*
5. Drew, D. *Large Renal Calculus Associated with Sarcoma of the Kidney.*
6. Henderson, J. *Note on a Case of Bence-Jones' Proteinuria.*
7. Bertrand, D. M., and Berthelot, A. *Ptomaine-Producing Bacteria in the Human Intestinal Tract.*
8. Harrower, H. R. *The Therapeutic Action of Splenic Extract and Its Application in the Treatment of Tuberculosis.*

2. McIntosh and Turnbull describe in detail their work, which confirms that of Flexner in this country, in transferring the virus of human anterior poliomyelitis to monkeys. [J. B. H.]

British Medical Journal.

February 15, 1913.

1. Owen, E. *Appendicitis: A Plea for Immediate Operation.*
2. Corner, E. M. *The Function of the Appendix and the Origin of Appendicitis.*
3. Cunning, J. *A Lecture on Carcinoma of the Colon.*
4. Morton, C. A. *The Results of Excision of the Hip Joint in Thirty-four Cases of Suppurating Tuberculous Disease.*
5. Fullerton, A. *Note on a Series of Fifty-five Cases of Suprapubic Prostatectomy with Four Deaths.*
6. *Thomson, F. G. *Some Problems Connected with Rheumatoid Arthritis.*
7. Weber, F. P. *The Occurrence of Acute Pneumonia During Treatment with Arsenic.*
8. Reid, J. *Three Cases in Midwifery Practice.*

6. Thomson describes various phenomena and pathological conditions associated with what he calls rheumatoid arthritis, which disease is characterized by more or less symmetrical spindle-shaped inflammatory swellings of the periarticular structures, affecting first the smaller joints of the hands and feet and accompanied by wasting cramps and contractures of muscles. There is room for doubt as to whether he refers to the hypertrophic, atrophic or infectious form of arthritis. Among other things, he speaks of vasomotor instability as being frequently present, cramps and increased reflexes. [J. B. H.]

February 22, 1913.

1. Zodler, R. J. *The Hunterian Oration.*
2. *Shaw, C. E. *Aches and Pains Connected with the Eye and Nose.*
3. Collins, W. *Tumors of the Orbit: A Plea for Operation.*
4. Cotterell, J. M., and Mackay, G. *Hematoma of the Left Orbit Treated by Modified Krönlein's Operation.*
5. *Lang, B. T. *The Influence of Septic Infection in the Causation of Eye Disease.*
6. Dowden, J. W. *Recurring Torsion of the Spermatic Cord; Operation.*
7. Nicoll, J. H. *Six Cases of Hydrocele in Infants Treated by Operation.*
8. Shattock, S. G. *Occlusion of the Inferior Vena Cava, as a Result of Internal Trauma (Dissecting Varix?).*
9. *Gillett, H. T. *Vaccine-Therapy in Chronic Bronchitis.*
10. Neil, W. F., and Crooks, F. *Supraclavicular Anæsthetization of the Brachial Plexus.*

2. Shaw, in a short paper, takes up and considers what may be the causes of aches and pains connected with the eye and nose. Among other conditions, he goes over acute iritis, glaucoma, gout in the eye, sphenoidal sinusitis, malignant disease, enlargement of the middle turbinates, chronic suppuration, syphilis and errors in refraction.

5. Lang considers the influence of foci of septic inflammation elsewhere in the body as causes of eye disease. In the respirato-alimentary tract such foci may be due to empyema of the antrum of Highmore, otitis, pyorrhœa alveolaris, chronic tonsillitis, tuberculosis of the lungs, gastritis, typhoid fever, chronic appendicitis, colitis and constipation. In the genito-urinary tract urethritis and bacteriuria may cause eye disease, while from the skin or a sinus leading from it, foci may arise, such as varicose ulcer, etc. He urges the consideration of the general condition of the patient in every eye disease.

9. Gillett reports eight cases of chronic bronchitis which he has treated with autogenous vaccines made from fresh sputum. He urges that doses be given large enough to produce a reaction. In his eight cases no other treatment was given. There was no opsonic control. Three of the eight cases recurred. His results, though apparently favorable, hardly warrant any definite conclusions. [J. B. H.]

Deutsche Medizinische Wochenschrift.

No. 4. January 23, 1913.

1. Klingmüller, V. *The Treatment of the Dermatomycoses.*
2. Möllers, B., and Wolff, G. *Experimental Investigations with Zenner's Tuberculosis Preparation "Tebecapin."*
3. *Roepke, O. *Experiences with Mesbé in Pulmonary and Laryngeal Tuberculosis.*
4. *Maliva, E. *Congenital Familial Icterus.*
5. Biermann. *Metapneumonic Brachial Plexus Neuritis and Polyneuritis.*
6. *Sasaki, T., and Otsuka, I. *Experimental Contribution to the Knowledge of Putrid Sputum.*
7. Melchior, E. *The Increased Dangers of Operative Losses of Blood in Congenital Narrowing of the Aortic System.*
8. Schlesinger, E. *The Dilation Value of the Pupil Reaction and the Extent of the Pupillo-motor Area of the Retina. Investigations on the Basis of a New Method.*
9. Freud, R. *Toxic Symptoms After Repeated Subcutaneous Emborin Injections.*
10. Lucas, H. *Cardiac Surgery.*
11. Loeb, H. *Cure of Verruca Plana by Salvarsan.*
12. Meyer, P. *Syphilis of the Internal Genitalia in Women.*
13. Oppenheimer, E. H. *Small Private Hospitals.*
14. Martin, A. *New Points of View on the History of Bathing and Morality in Germany (To be concluded.*

3. Mesbé is an extract from *Sida rhombifolia Cubilguitziana*, a sort of American mallow. It is a new agent of unknown composition and action. Roepke considers that it is no true curative agent for tuberculosis. He reports its use in 21 cases. He finds that it fails completely in pulmonary tuberculosis, and that its local application in laryngeal tuberculosis often makes the patient subjectively and objectively worse. He, therefore, considers Mesbé as worthless.

4. Maliva reports a case of congenital familial icterus which he concludes should be regarded as a primary blood disease, which proceeds with anemia and typic changes in the erythrocytes. These changes consist in diminution of the resistance capacity and in the appearance of vitally differently stainable elements. The associated icterus is to be regarded as pleiochromous, the splenic enlargement as spodogenous.

6. As a result of their bacteriologic study of a case, which they report, the authors conclude that, for the formation of skatol in putrid bronchitis, there is need of the action of bacteria, like *pyocyaneus*, in addition to the energic enzyme, especially so-called aurinazidase. [R. M. G.]

No. 5. JANUARY 30, 1913.

1. KASSOWITZ, M. *The Pathogenesis and Etiology of Rickets.*
2. *JOSEPH, M. *The Wassermann Histopin Therapy in Dermatology.*
3. ZWEIG, L. *The Treatment of Furunculosis and of Sycosis Coccogenes with the Staphylococcus Vaccine "Opsonogen."*
4. HERZBERG, S. *Clinical Experiments with the Isolated Active Substance of the Hypophysis.*
5. v. ZUBRZYCKI, J., AND WOLFSGRUBER, R. *Normal Hemaglutinins in Woman's Milk and Their Transfer to the Child.*
6. *BAUMM, P. *Experiences with Extraperitoneal Cesarean Section.*
7. JABOSCH. *Mesbé in Pulmonary Tuberculosis.*
8. HOLMGREN, I. *The Influence of the White Blood Corpuscles on the Viscosity of the Blood.*
9. ELLERMANN, V. *Quantitative Precipitate Reactions in Syphilis.*
10. KREDEL, L. *The Treatment of Cleft Palate and Hare-Lip.*
11. DOBBERTIN. *Length of Incision, Irrigation, and Conflict Against Intestinal Paralysis in Appendicitis with Peritonitis.*
12. LÜDERS, C. *Syphilitic Otitis Media.*
13. DUTOIT, A. *Tuberculosis of the Thyroid.*
14. MARTIN, A. *New Points of View on the History of Bathing and Morality in Germany.*

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2. Joseph believes that histopin is a valuable therapeutic agent in dermatology, but that its cost is prohibitive.

6. Baumm believes that the suprasymphysial incision is a valuable obstetric procedure, without great danger, superior to pubiotomy, premature induction, and classic Cesarean section. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 6. FEBRUARY 11, 1913.

1. LEHMANN, K. B. *The Active and Valuable Constituents of Coffee, with Special Reference to "Koffee Hag" and "Thumkaffee."* (*To be concluded.*)
2. *SCHLOSSMANN, A. *Economy of Metabolism of Energy in Infants.*
3. *LINDIG, P. *Action of Serum-ferments in Pregnancy and in Cases of Tumor.*
4. STOELTZNER. *Larosan, a Simple Substitute for Albumen-Milk.*
5. HAMM, A. *A Rare Case of Coli Pyemia and the Clinical Significance of Bacterial Anaphylatoxin.*
6. SCHNEIDER, H. *Heritability of Atheroma.*
7. RÉTHE, A. *Electrolytic Treatment of Trifacial Neuralgia.*
8. v. NOORDEN. *Indications for and Effect of the Hamburg Mud.*
9. MÜLLER, M. *Necessity of Obligatory Wassermann Tests for Prostitutes to Prevent Syphilis.*
10. VOLL, A. *Painless Delivery.*
11. MAYER, A. *Use of the Electric Pocket-light or the Diagnosis of Doubtful Hydrocele.*

2. Schlossman calls attention to the extraordinary economy of the infant, which enables it to maintain its temperature, and activities, and to gain rapidly in weight with small requirements for sustenance and a minimum waste. He says that ill-nourished infants are, ordinarily, comparatively inactive, and that thus they make the most of what they have; but that swathing healthy children in order to make them gain weight is false economy because the muscles cannot then develop normally. The writer quotes, in conclusion, an epigram of Liebig: "Culture is economy of energy, a needless expenditure of which, whether in agriculture, industry, science or in the State, characterizes rawness or lack of culture."

[G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 6. FEBRUARY 6, 1913.

1 *FREUND, E. *The Chemistry of Roentgen and Radium Rays in Relation to Carcinoma.*
2. KAMINER, G. *Surgical Experience from the War in Bulgaria.*
3. EXNER, A. *Surgical Experience from the Bulgarian-Turkish War.*
4. FRISCH, C. *Surgical Experience of the War from Sofia.*
5. FRAENKEL, A. *Observations and Impressions from the Balkan War.*
6. OLLMAN, K. *The Question of the Parasitotropism and the Toxicity of Salvarsan (Neosalvarsan).*

1. The author arrives at the following conclusions: That the removal of a fatty-acid from the tissues and serum, since that fatty-acid is protective against the development of carcinoma cells, allows the growth of carcinoma. That toxic, not therapeutic, use of Roentgen rays removes this fatty acid, and so allows carcinoma to develop. That excessive radium rays set free from the nucleo-globulin of the carcinoma cell, this carcinoma-protecting fatty acid. That neither by radium or Roentgen rays is the carcinoma cell robbed of its pathological selective activity for carbohydrates. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 100. PART 2.

6. MAGNUSSON, G. *Two Hundred and Fourteen Operations for Echinococcus. Pathology and Treatment.*
7. *SPRENGEL. *Clinical Observations on the Diffuse, Inflammatory Diseases of the Retroperitoneum and Their Relation to Peritonitis.*
8. SCHULTZE, E. O. P. *Albert Köhler's Disease in the Os Naviculare Pedis in Children—a Fracture.*
9. SCHULTZE, E. O. P. *Schlatter's Disease, a Symptom of a Systemic Disorder.*
10. *FORSSNER, H. *The Pathogenesis of Congenital Intestinal and Esophageal Atresia.*
11. KREUTER. *Remarks on the Preceding Article by Forssner.*
12. KEPPLER, W. *Anesthetization of the Lower Extremities by Means of Injections into the Great Nerve Trunks.*
13. NEY, E. *The Importance of the Vein in Arteriovenous Aneurysm. Experimental Observations.*
14. WEISHAUPT, E. *An Embryonic By-path of the Parotid Duct and Its Relation to Some Parotid Tumors.*
15. SATO, S. *The Cavernous Angioma of the Peripheral Nervous System.*
16. FRENKMEYER, F. *The Employment of the Murphy Button in Posterior Gastroenterostomy.*
17. STAFFEL, A. *The Argument That Arthritis Deformans of the Hip is an Occupational Disease.*

7. This article by Prof. Spengel is a lengthy discussion of the inflammatory diseases of the retroperitoneum, with clear illustrations showing the anatomy involved and with many clinical observations from his own cases. He considers chiefly those infections arising from the bile ducts, the pancreas and the intestines, and those developing about the kidneys and beneath the pelvic peritoneum.

10. Forssner's article is largely a refutation of Kreuter's theory concerning duodenal atresia. The former believes that the process in the duodenum is essentially the same as similar processes elsewhere in the intestines. He describes and illustrates the

several types of congenital stricture or atresia, and attributes the lesion to overdevelopment of the mesenchymal layers rather than to adhesions of the epithelium. [G. G. S.]

REVUE DE MÉDECINE.

JANUARY, 1913.

1. JOB, E. *Paratyphoid Infections. An Etiologic and Epidemiologic Study.*
2. *GELMA, E. *Thyroid Opotherapy and Epilepsy.*
3. *ROGER, H., AND BAUMEL, J. *Headaches of Acute Infectious Disease, Treated and Relieved by Lumbar Puncture.*
4. CONSTAING AND FILDERMAN. *Dental Erosion Regarded from the Point of View of General Pathology.*

2. Gelma has treated two epileptics with thyroid extract with beneficial results. Both cases showed evidence of deficient thyroid activity, so that the result of such treatment not only improved their general condition, but also caused a cessation of epileptiform seizures. He does not recommend the general application of this form of treatment in all cases of epilepsy, but only those in which hypothyroidism is a factor. He holds out the hope in such cases of removing the mental state peculiar to so many epileptics.

3. Fifteen cases of persistent and distressing headache, associated with acute infectious diseases, were treated by Roger and Baumel. Immediate relief resulted in almost all instances, and in only four cases was a second puncture necessary. In only one instance were the leucocytes of the spinal fluid increased in number. That was a case of granular pneumonia confirmed by autopsy. The procedure was devoid of inconvenience on the part of the patient, and was of far greater value and of more prompt result than the ordinary therapeutic measures for the relief of such headaches. [L. H. S.]

Miscellany.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical Section Meeting at the Boston Medical Library on Wednesday, April 2, 1913, at 8.15 p. m.

"Recent Advances in the Roentgen Examination of the Gastrointestinal Tract," James T. Case, M.D., Battle Creek, Michigan. Discussion will be opened by Drs. Franklin W. White, E. A. Codman, and E. G. Martin.

Light refreshments after the meeting.

HERMAN F. VICKERY, M.D., *Chairman*,
263 Beacon Street.

G. C. SHATTUCK, M.D., *Secretary*,
205 Beacon Street.

THE CARNEY HOSPITAL Clinical meeting will be held in the main hospital building on Friday evening, Mar. 28, at 8.15. Members of the medical profession are invited.

TOWNSEND W. THORNDIKE, *Secretary*.
20 Newbury Street, Boston.

APPOINTMENT.

DR. L. VERNON BRIGGS, of Boston, has recently been appointed a member of the Massachusetts State Board of Insanity.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 15, 1913.

The following have been commissioned Assistant Surgeons in the Medical Reserve Corps, U. S. Navy: J. C. DaCosta, from Jan. 6, 1913; M. B. Miller, from Jan. 14, 1913; J. F. Burnham, Jan. 23, 1913; C. A. Simpson, from Jan. 25, 1913; W. S. Bainbridge, from Jan. 25, 1913; J. J. Richardson, from Jan. 31, 1913; G. T. Vaughan, from Feb. 5, 1913; J. A. Tompkins, from Feb. 13, 1913; S. S. Adams, from Feb. 13, 1913; D. A. Heffernan, from Feb. 13, 1913, W. G. Townsend, from Feb. 7, 1913; C. A. Frink, from Feb. 25, 1913; B. R. Shurly, from Feb. 25, 1913; H. A. Hare, from Jan. 6, 1913; W. C. Lyon, from Jan. 20, 1913; A. B. Bennett, from Jan. 25, 1913; H. C. Fuller, from Jan. 27, 1913; L. C. Lehr, from Jan. 27, 1913; W. G. Morgan, from Jan. 31, 1913; L. P. Shippen, from Feb. 5, 1913; A. E. Gallant, from Feb. 13, 1913; W. S. Thomas, from Feb. 13, 1913; H. D. Meeker, from Feb. 13, 1913; W. W. Wilkinson, from Feb. 25, 1913; E. M. Foote, from Feb. 25, 1913.

LYNCH, C. P., assistant surgeon. Commissioned assistant surgeon from Feb. 19, 1913.

LYON, W. C., assistant surgeon. Detached from Med. Reserve Corps, U. S. N., and ordered to duty Navy Medical School, Washington, D. C.

HARTUNG, F. A., acting assistant surgeon. Appointment as such revoked from Mar. 31, 1913.

WIESER, F. W. F., medical director. Commissioned medical director from Oct. 23, 1912.

VON WEDEKIND, L. L., medical inspector. Commissioned medical inspector from Oct. 28, 1912.

KENNEDY, R. M., medical inspector. Commissioned medical inspector from Jan. 22, 1913.

DYKES, J. R., surgeon. Commissioned surgeon from Sept. 2, 1912.

SULLIVAN, N. R., assistant surgeon. Detached from Naval Medical School, Washington, and ordered to Asiatic Station.

WENTWORTH, A. R., medical director. Commissioned medical director from Dec. 28, 1912.

HOUGH, F. P. W., passed assistant surgeon. Detached from *Intrepid*, and ordered to Asiatic Station.

ZALESKY, W. J., passed assistant surgeon. Detached from Navy Yard, Charleston, S. C., and ordered to Asiatic Station.

REED, E. U., passed assistant surgeon. Detached from Naval Station, Tutuila, Samoa, and ordered home, waiting orders.

BUCKLEY, JOHN, assistant surgeon. Commissioned assistant surgeon from Feb. 4, 1913.

BOGERT, E. S., medical inspector. Commissioned medical inspector from Dec. 28, 1912.

SPRATLING, L. W., medical inspector. Commissioned medical inspector from Jan. 12, 1913.

RODMAN, S. S., surgeon. Detached from Atlantic Reserve Fleet, to Navy Yard, Charleston, S. C.

ELY, C. F., surgeon. Detached from Naval Proving Ground, Indian Head, Md., and ordered to Tutuila, Samoa.

BACHMANN, R. A., surgeon. Ordered to U. S. S. *Delaware*.

ROSSITER, P. S., surgeon. Commissioned surgeon from Dec. 28, 1912.

GATES, M. F., medical inspector. Command, Naval Hospital, Mare Island, Cal.

RECENT DEATHS.

DR. GEORGE S. ADAMS, who died on March 17, at Stamford, Conn., was born in 1857. He was for 20 years superintendent of the Massachusetts State Hospital at Westboro.

DR. PRINCE A. MORROW, who died in New York City on March 17, was born at Mount Vernon in 1846. He received the degree of M.D. in 1874 from New York University Medical College. From 1884 to 1904, he was attending surgeon at the New York City Hospital.

He made a specialty of dermatology, and in 1888 spent a winter in Hawaii to study leprosy at Molokai. From 1890 to 1904 he was attending physician for diseases of the skin at the New York Hospital. He was a frequent contributor to medical literature, and a member of many medical societies. He had been president of the American Society for Sanitary and Moral Prophylaxis since its foundation in 1905.

DR. SYLVESTER E. STRONG, who died on March 17 at Saratoga Springs, N. Y., was born in 1837. He graduated from Wesleyan University in 1860, and in 1863 received the degree of M.D. from New York University Medical School. During the remainder of the Civil War he served as a surgeon in the Union Army.

DR. JOHN SHAW BILLINGS, formerly Lieutenant Colonel and Deputy Surgeon General, U. S. Army, died of pneumonia in the New York Hospital on Mar. 11. He was born in Indiana on April 12, 1838 and was graduated from Miami University in 1857, and later from the Ohio Medical College. During the Civil War he served as Medical Inspector in the Army of the Potomac, and later had charge of the organization of the library of the Surgeon General's office, which at the time he left was the largest medical library in the world. The monumental Index Catalogue of this library, in more than thirty volumes, remains as a tribute to his bibliographic attainments, and it was largely through his efforts that Andrew Carnegie's gift, enabling the development of the largest book circulating library in the world, was secured. Dr. Billings reorganized the U. S. Marine Hospital Service in 1870, and afterwards was placed in charge of the division of vital statistics of the Eleventh Census. One of his most noteworthy achievements was the development of the Johns Hopkins University Hospital. From 1893 to 1896 he was professor of hygiene in the University of Pennsylvania, a position which he resigned to become director of the great New York Public Library, which he organized. Among the offices he held at various times were, president of the American Public Health Association, president of the American Library Association, chairman of the executive committee of the Carnegie Institute, and vice-president of the American Statistical Association. Dr. Billings is survived by four daughters and a son, the latter also a physician.

DR. ARCHIBALD E. ISAACS, of New York, one of the founders of the Beth Israel Hospital and its honorary secretary from its organization, died from pneumonia on March 14, at the age of 47 years. He was graduated from the medical department of New York University in 1886, and at the time of his death was surgeon to the Beth Israel and Sydenham Hospitals.

DR. AMBROSE TREGANOWAN of South Amboy, N. J., died on March 12, at an advanced age. He was graduated from the Medical and Surgical College, Philadelphia, in 1854, and was three times mayor of South Amboy.

DR. LORENZO WAITE, who died recently at Pittsfield, Mass., was the oldest living graduate of the Berkshire Medical School, from which he received the degree of M.D. in 1854.

DR. WILLIAM A. LITTLE, of Brooklyn, N. Y., one of the founders of the Bushwick Hospital, died on February 24. He was graduated from the medical department of New York University in 1878.

DR. JOHN MORSE WAKEFIELD, who died recently in Warren, Knox County, Me., was born at Lewiston, Me., in 1851. He received the degree of M.D. in 1875 from Dartmouth, and since that time had practised his profession at Warren. He is survived by his widow.

DR. JOHN WARREN WILLIS, who died of pneumonia on March 1 in Waltham, Mass., was born at Belchertown, Mass., in 1832. He received the degree of M.D. in 1861 from the Harvard Medical School, and immediately settled at Waltham, where he continued active in the practise of his profession for fifty years until his retirement in 1911. He was a founder of the Waltham Hospital and a surgeon on its staff. He served for many years as city physician. He was also a founder of the Waltham Nurses' Training School, and at the time of his death was one of its trustees. He was a member of the American Medical Association and of the Waltham Medical Club. He was a Fellow of The Massachusetts Medical Society, and served for 20 years as treasurer of the Middlesex South District Medical Society. He is survived by two sons, both physicians.

DR. MERRITT ALLEN LONG, who died of pneumonia on March 4, at Lowell, Mass., was born at Manchester, Mass., in 1877. He received the degree of M.D. from the Tufts Medical School in 1905, and served as an interne at the Lowell General Hospital. He was a fellow of The Massachusetts Medical Society. He was not married.

DR. HORACE AMOS DAVIS, who died of appendicitis recently at Dorchester, Mass., was born in Roxbury, Mass., on Nov. 14, 1874. He received the degree of Ph.B., from Tufts College in 1897, and that of D.M.D. in 1900 from the Harvard Dental School. Since that time he had practised his profession in Boston.

DR. JOHN D. TREZISE, of Brooklyn, N. Y., died on March 4, at the age of 51 years. He was graduated from the Long Island College Hospital in 1901.

DR. FREDERICK C. JOHNSON, who died on March 5 at Wilkes-Barre, Pa., was born in 1858. He graduated from the University of Pennsylvania Medical School in 1882, but never practised his profession.

DR. CARLTON REVERE THOMAS, of Dorchester, Mass., who died in Boston on March 8, was born in 1877 at Whitman, Mass. After graduating from Boston University Medical School in 1901, he served for a year as interne at the Channing Hospital, Providence, R. I., and then settled in the practise of his profession in Dorchester. He is survived by his widow, one daughter, and one son.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 15, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	14	1
Chicago	—	—	Waltham	6	—
Philadelphia	—	—	Brookline	10	2
St. Louis	—	—	Chicopee	11	2
Baltimore	—	—	Gloucester	6	—
Cleveland	—	—	Medford	6	1
Buffalo	—	—	North Adams	7	4
Pittsburgh	—	—	Northampton	14	2
Cincinnati	—	—	Beverly	10	2
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	5	—
Providence	—	—	Attleboro	8	5
Boston	224	67	Westfield	8	3
Worcester	47	15	Peabody	3	—
Fall River	47	23	Melrose	3	—
Lowell	39	11	Woburn	7	1
Cambridge	34	7	Newburyport	9	—
New Bedford	—	—	Gardner	—	—
Lynn	20	3	Marlboro	4	—
Springfield	39	12	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	14	1	Adams	1	—
Holyoke	19	10	Framingham	3	—
Brockton	18	7	Weymouth	3	—
Malden	19	5	Watertown	3	2
Haverhill	14	6	Southbridge	5	3
Salem	16	4	Plymouth	3	—
Newton	7	1	Webster	—	—
Fitchburg	20	4	Methuen	3	—
Taunton	13	2	Wakefield	6	3
Everett	14	3	Arlington	4	—
Quincy	—	—	Greenfield	4	—
Chelsea	12	—	Winthrop	—	—

Original Articles.

SOME FACTORS WHICH INFLUENCE THE EXCRETION OF FORMALIN IN THE URINE OF CHILDREN AND INFANTS TAKING HEXAMETHYLENAMIN (UROTROPIN).*

BY FRITZ B. TALBOT, M.D., BOSTON,

Chief of Children's Medical Department, Massachusetts General Hospital.

AND

WARREN R. SISSON, M.D., BOSTON,

House Officer Children's Medical Department.

(From the Children's Medical Department, Massachusetts General Hospital.)

OUR attention was first directed to this subject during the early part of September. At that time we had a relatively large number of cases of pyelitis in our ward. Contemporary with this, the work of Burnam and L'Esperance appeared. These authors found that only about 60% of all adults were able to break down hexamethylenamin. It occurred to us that it would be of interest and of some therapeutic importance to determine if the same fact applies to children. At this time it was our custom in cases of pyelitis to give large doses of urotropin and alkalies.

Burnam's[1] work on adults has added much to our knowledge of the action of hexamethylenamin in the human organism and its properties of supplying formaldehyde. He finds that no more than two patients out of ten show any decomposition of the drug into formaldehyde when given in the ordinary doses of five to ten grains three times a day. Although not more than 10% of the individuals tested showed free formaldehyde in the urine after the smaller doses, 60% showed it when the dosage was made from 20 to 30 grains, repeated every four to six hours. In a few instances in which the formaldehyde was not present after a dosage of 30 grains, the quantity was raised as high as 100 grains at a single dose without causing decomposition of hexamethylenamin. He concluded that there are some individuals who do not break down hexamethylenamin into formaldehyde. He says, furthermore, that "it is his impression that the formaldehyde liberation is due to some specific activity of the renal epithelium. The greatest decomposition has been observed in the highly acid urines. Meyer and Gottlieb[2] say that urotropin is split up slowly in a neutral urine, quickly in acid urines, and not at all in alkaline urines. L'Esperance and Cabot,[3] on the other hand, conclude, as a result of their work on adults, that the reaction of the urine is of no importance and that alkalies taken with or in combination with urotropin, have no effect on the excretion of formaldehyde. They did not find that increasing the doses had any effect upon the excretion of formaldehyde in negative cases. Jordan[4] showed that the antiseptic power of urotropin in alkaline or neutral urine is almost nihil, that this power rises rapidly as the acidity increases, and when the acidity is slightly above normal the urine remains indefinitely sterile. He concluded that urotropin acts as a urinary antiseptic by the formation of formaldehyde. No formaldehyde is formed in an alkaline urine, and, in consequence, the antiseptic action is nihil. In neutral or faintly acid urines, a small amount, probably not exceeding one per cent., is split up and the action is feeble. The percentage of formaldehyde, and with it, the antiseptic power, increases with the acidity up to a point at which the urine remains sterile. He was able to increase the acidity of the urine by administering acid sodium phosphate. He believes that the process of converting urotropin into formaldehyde is a simple chemical one, which occurs in all solutions of urotropin under conditions of dilution, temperature, and acidity which are identical with those in the body. Urotropin or hexamethylenamin is formed by the direct action of four molecules of ammonia on six of formaldehyde gas:—

AMMONIA.		FORMALDEHYDE.		HEXAMETHYLENAMIN.		WATER.
$4NH_3$	+	$6HCO$	=	$(CH_2)_6N_4$	+	$(6H_2O)$

When acid is added to an aqueous solution of urotropin there is partial decomposition into formaldehyde and ammonia, and on boiling complete decomposition.

The test for formaldehyde used in the following investigation is that described by Burnam and Dunning,[1] and is performed as follows:

To about 10 c.c. of suspected urine in a test tube at body temperature, is added:—

(1) 3 drops of 0.5% aqueous solution of phenyhydrazin hydrochloride.

(2) 3 drops of 5.0% aqueous solution of sodium nitroprusside.

(3) A saturated solution of sodium hydrate is poured down the side of the test tube.

When formaldehyde is present in solutions of 1 : 20,000, or stronger, an intense blue color appears, and gradually changes to green as the sodium hydrate diffuses through the urine. This changes to a brown color in a few minutes. In solutions of less than 1 : 20,000 the first color is an intense green, which passes off into brown. The test is delicate down to 1 : 150,000 or less.

When a urine does not contain formaldehyde the color reaction is as follows: As the solution

* Read at a meeting of the New England Pediatric Society, November 14, 1912.

of sodium hydrate diffuses through the urine in the tube, a reddish color is seen, gradually turning to light yellow.

When a solution is tested and found to be negative, as is the case when urotropin alone is present, it can be acidulated with sulphuric acid, heated to boiling, cooled off and tested. The reaction will then be positive, due to the breakdown of urotropin into formaldehyde.

The urine of forty-four children* and babies in the wards were examined (by W. R. S.), and the results of 400 single specimens have been recorded below. It was found that with two exceptions, all the urines containing formaldehyde were acid, and that all the alkaline urines were negative. There were two faintly alkaline urines that showed the presence of formaldehyde; 127 acid urines contained formaldehyde and 83 did not. There were 56 negative alkaline urines and, with the exception of the two slightly alkaline urines mentioned above, there were no positive ones. Eight neutral urines were negative. Eight alkaline urines showed formaldehyde after they were boiled with sulphuric acid, while three did not. Three faintly acid urines did not contain formaldehyde, but after they were boiled with sulphuric acid, gave the test; while ten definitely acid urines did not contain formaldehyde, even after boiling with sulphuric acid.

These facts indicate that hexamethylenamin is often excreted by children as such, in alkaline or neutral urine, and is almost never broken down into formaldehyde except in an acid urine. The two exceptions may possibly have been acid in the kidney and changed their reaction to litmus paper in the bladder. It should further be stated that we feel that the methods employed to determine the reaction of the urine, is not the the most accurate. In consequence, we have already undertaken to determine this more exactly by use of the hydrogen ionization method. In this way we hope to determine the exact reaction at which the maximum excretion takes place. Several children (ex. Case 2), excreting formaldehyde while the urines were acid, were given enough sodium bicarbonate and potassium citrate to make the reaction of the urines alkaline. The test for formaldehyde disappeared and urotropin was presumably excreted as such. When the urine became acid formaldehyde was found again. Five cases did not show formaldehyde in the urine until the dose was increased, while in others it appeared only after four days (Case 40).

In some cases urotropin and formaldehyde were both absent at one time of day and formaldehyde present at other times of day. This would seem to indicate that there are periods between doses in which all the previous dose had been excreted before the administration of the next one. Formaldehyde may appear in the urine of children one to two hours after the first dose; we were unable to determine how much earlier, but one child (Case 17) did not show any in thirty-five minutes. It has been found sixteen to eighteen hours after the last dose was given, but not later than eighteen hours.

All of the forty-four children and babies tested showed formaldehyde in the urine at some time while they were under observation. These results do not correspond with those reported in adults. Out-patient cases were not used in our series because we were unable to control the doses and could not be certain that the drug was given. If Burnam's assumption that urotropin is broken down into formaldehyde by the renal epithelium is correct, it is possible that these tests may become of value in estimating kidney function.

From our observations we feel that we can safely conclude:—

1. That all children are capable of breaking down hexamethylenamin.

2. That they all consequently excrete formaldehyde.

3. That relatively large doses are often necessary before the excretion of formaldehyde takes place.

4. That, as pointed out by Jordan, "the more acid the urine the greater is the decomposition of urotropin and excretion of formaldehyde." Since it has been shown by other observers that the antiseptic power of urotropin is dependent, not upon the hexamethylenamin, but upon the presence of free formaldehyde, we can further conclude,—

5. That urotropin should not be given with drugs that cause the urine to turn alkaline.

6. Finally, we believe that to insure the efficacy of the drug, specimens of urine after the administration of hexamethylenamin should always be examined for the presence of free formaldehyde.

* While making these observations we had opportunity to examine the bile obtained from a child with a biliary fistula of a number of months standing. Applying the phenylhydrazine test we were unable after repeated efforts to find hexamethylenamin or formaldehyde in the bile. Simultaneously with this, the urine of the same child was examined and found to contain formaldehyde on every occasion. The dose was raised, however, no formaldehyde was found in the bile. The specimens were repeatedly examined in the chemical laboratory of the Massachusetts General Hospital and found by other tests to contain no formaldehyde. Though no conclusion can be drawn from this single case, however, the results are of interest. Crow experimenting on dogs found formaldehyde in the bile. Our observations would seem to confirm the results of Burnam. After studying the bile of adults he believes that urotropin is of no therapeutic importance as a biliary antiseptic.

REFERENCES.

[1] Arch. of Internal Medicine, 1912, vol. x, p. 824.

[2] Die Experimentelle Pharmakologie als Grundlage der Arzneibehandlung. Berlin and Wien, 1911, p. 859.

[3] BOSTON MEDICAL AND SURGICAL JOURNAL, 1912, vol. clxvii, p. 577.

[4] The Action of Urinary Antiseptics, Bio-chemical Journal, 1911, vol. v, p. 279.

	NAME.	AGE.	DIAGNOSIS.	DATE	DOSE.	REACTION.	TEST.
1.	Reese,	6 mos.	Pyelitis	Oct. 20	Urotropin, grs. ii, every 2°	Acid	Positive
2.	Poirier,	7 yrs.	Typhoid fever	Oct. 19	Urotropin, gr. v, 4 l. d.	Acid	Negative
				Oct. 20		?	Negative
				Oct. 28-29 9 A.M., 12 NOON 3 P.M., 6 P.M. (last dose)	Gr. v.		
				Oct. 29, 6 A.M.			Positive
				Oct. 29, 9 A.M.			Positive
				Oct. 29 12 NOON			Positive
				Oct. 29 2 P.M.			Positive
				Oct. 29, 3.30			Negative
				Oct. 31	Grs. vii, every 6°, 4 doses.		Positive
				Oct. 31, 8 P.M.		Alkaline	Negative
				Oct. 31, 11 P.M.		Alkaline	Negative
	Reaction persisted positive when tested 24 hours after urine was passed.			Nov. 1, 10.30 A.M.		Acid	Positive
				Nov. 1, 2.15 P.M.		Acid	Positive
				Nov. 1, 8 P.M.		Faintly Alkaline	Negative
				Nov. 1, 10 P.M.		Neutral	Negative
				Nov. 2, 2 A.M.		Neutral	Negative
				Nov. 2, 10 A.M.		Faintly Acid	Positive
				Nov. 2, 3 P.M.		Acid	Positive
				Nov. 3, 6.45 P.M.		Faintly Alkaline	Positive
				Nov. 3, 3.15		Acid	Positive
	Dose: Hexamethylenamin gr. vii, cont. Nov. 3, midnight, to Nov. 5, midnight, sodium bicarb. gr. xxx given at 12, 4 A.M., 8, 10, 12, 2, also 12, 6, 12 pot. citrate gr. x.			Nov. 4, 1 A.M.		Acid	Positive
				Nov. 4, 3 A.M.		Acid	Positive
				Nov. 4, 1.30 P.M.		Alkaline	Negative
				Nov. 4, 2.45 P.M.		Alkaline	Negative
				Nov. 5, 5 A.M.		Acid	Positive
				Nov. 5, 1.45 P.M.		Faintly Alkaline	Positive
				Nov. 5, 5 P.M.		Alkaline	++ Negative
	Note: Sod. bicarb. and pot. citrate omitted November 6th.			Nov. 6, 11 A.M.		Faintly alkaline	Positive
				Nov. 6, 11 P.M.		Alkaline	++ Negative
				Nov. 6, 4 P.M.		Alkaline	+ Negative
				Nov. 8, 3 A.M.		Acid	Positive
				Nov. 8, 5.45 P.M.		Acid	Positive
				Nov. 9, 5 A.M.		Acid	Positive
				Nov. 9, 10 A.M.		Acid	Positive
				Nov. 9, 5 P.M.		Acid	Positive
				Nov. 12, 6.15 P.M.		Acid	Negative
	Nov. 14, Hexamethylenamin omitted.			Nov. 16, 10 A.M.		Acid	Positive
				Nov. 16, 1.30 P.M.		Acid	Negative
				Nov. 16, 3.45 P.M.		Acid	Negative
	Nov. 16, midnight. Hexamethylenamin, gr. x, every six hours. This reaction was much stronger after urine had been heated with concentrated H2S04.			Nov. 17, 4 A.M.		Acid	Negative
				Nov. 17, 5 A.M.		Acid	Positive
				Nov. 17, 10.45 A.M.		Acid	Positive
				Nov. 17, 1.30 P.M.		Acid	Positive
				Nov. 17, 5.30 P.M.		Acid	Positive
	Same urine + H2S04 + heat, positive.			Nov. 22, 3 P.M.	Urotropin, gr. v, sod. bensoate (gr. v) every 6°	Alkaline	Negative
	Same urine + H2S04 + heat, positive.			Nov. 22, 3.30 P.M.		Alkaline	Negative
				Nov. 24, 5 A.M.		Alkaline	Negative
				Nov. 24, 11 A.M.		Alkaline	Negative
	Same urine + H2S04 + heat, was			Nov. 25, 6 A.M.		Alkaline	Positive Negative
				Nov. 25, 10 A.M.		Alkaline	Negative
				Nov. 25, NOON		Alkaline	Negative
	Same urine + H2S04 + heat, was			Nov. 26, 4 A.M.		Alkaline	Positive Negative
				Nov. 26, 1 P.M.		Alkaline	Negative
				Nov. 27, 2 A.M.		Alkaline	Negative
				Nov. 27, 2 P.M.		Neutral	Negative
				Nov. 30, 11 A.M.		Faintly acid	Negative
	Same urine + H2S04 + heat, was						Positive

NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
Poirier—Continued.			Nov. 30, 11 P.M.		Acid	Positive
			Nov. 30, 7.30 P.M.		Acid	Negative
Same urine + H2504 + heat, was						Positive
			Dec. 1, 1.30 A.M.		Acid	Positive
			Dec. 1, 10 A.M.		Acid	Positive
3. Lodzitz,	5 yrs.	Ac. nephritis	Oct. 9	Urotropin, gr. v, every 4°, 3 doses.		Positive
4. Axtman,	5½ yrs.	Ac. anterior poliomyelitis	Oct. 12	Urotropin, gr. vi, every 3°, 4 times a day.		Positive
5. Spillane,	4 yrs.	Torticollis	Oct. 24	Urotropin, gr. iii, 3 times a day.	Acid	Positive
			Oct. 24, 4.30 P.M.			Positive
			Oct. 24, 8.30 P.M.			Positive
			Oct. 25, 4.30 A.M.			Positive
			Oct. 25, 8.00 A.M.			Negative
6. Mayhew,	8 yrs.	Chr. bronchitis	Oct. 24, 9 A.M.	Urotropin, gr. v, every 6°, 4 times in 24° (6 A.M., NOON, 6 P.M., midnight).		Negative
			Oct. 24, 2 P.M.			Positive
			Oct. 24, 4.10 P.M.			Positive
			Oct. 25, 3 A.M.			Positive
			Oct. 25, 4.30 A.M.			Positive
			Oct. 25, 8 A.M.			Positive
			Oct. 25, 10 A.M.		Faintly	Positive
				Gr. v, given at noon.		
			Oct. 25, 1 P.M.			Positive
			Oct. 25, 2 P.M.			Positive
Stronger tests than previous ones.			Oct. 25, 3 P.M.			Positive
			Oct. 25, 5 P.M.			Positive
			Oct. 25, 6 P.M.			Negative
			Oct. 25, 9.15 P.M.			Negative
			Oct. 26, 5.30 P.M.			Negative
			Oct. 26, 11.30 A.M.			Positive
			Oct. 26, 12.45 P.M.			Positive
			Oct. 26, 1 P.M.			Positive
			Nov. 21, 2 P.M.		Alkaline	Negative
			Nov. 22, 6.50 P.M.		Alkaline	Negative
			Nov. 23, 6 A.M.		Acid	Positive
Dose increased to gr. vi, ac. sod. phosphate gr. v 2i. d., started to make urine more strongly acid.			Nov. 23, 6 P.M.		Alkaline	Negative
Same specimen + H2504 + heat.						Positive
			Nov. 24, 1.30 P.M.		Alkaline	Negative
			Nov. 25, 8.30 A.M.		Alkaline	Negative
			Nov. 25, 1.45 P.M.		Faintly acid	Negative
			Nov. 25, 4 P.M.		Faintly acid	Negative
			Nov. 26, 1.30 P.M.		Acid	Negative
Same specimen + H2504 + heat.						Positive
			Nov. 27, 5 A.M.		Acid	Positive
7. Shannon,	6 yrs.	Appendicitis post-operation	Oct. 24, 8 A.M.	Urotropin, gr. iii, 3 times a day. (4 hours after first dose.)		Positive
			Oct. 24, 2.30 P.M.			Positive
			Oct. 25, 10 A.M.	Gr. 3.		
Dose at			2 P.M.			
			6 P.M.			
			Oct. 25, 10.30 A.M			Positive
			Oct. 25, 5.30 A.M.			Positive
			Oct. 26, 8.30 A.M.			Negative
			Oct. 26, 10.00 A.M.			Negative
			Oct. 26, 11.15 A.M.			Negative
(It is impossible to say whether these negative reactions are due to lack of excretion or to the reaction of the urine.)			Oct. 26, 3.30 P.M.			Negative
			Oct. 28, 6 A.M.			Negative
			Oct. 28, 3 P.M.			Positive
			Oct. 28, 5.30 P.M.			Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
8.	Block,	3 yrs.	Burn	Oct. 23, 6.00 P.M.	Urotropin, gr. iii.		
			Urine passed	8.30 P.M.			Positive
				Oct. 25, 2 P.M.	Urotropin, gr. iii.		
			Urine passed	6.15 P.M.			Positive
	(In this case formaline was found in the urine 2½ hours after the first dose. The test was found 12½ hours after the last dose but not 19 hours after the dose.)			Oct. 26, 2.30 A.M.			Positive
				Oct. 26, 10 A.M.			Negative
				Oct. 26, 12.30 P.M.			Negative
				Oct. 26, 2.30 P.M.			Negative
9.	Surette,	6 yrs.	Fracture of femur		Urotropin, gr. v, 3 times a day for 2 weeks.		
				Oct. 24, 11.30 A.M.		Acid	Positive
				Oct. 24, 2.15 P.M.		Acid	Positive
				Oct. 24, 3.30 P.M.		Acid	Positive
				Oct. 25, 6.30 P.M.		Acid	Positive
				Oct. 25, 12.00 P.M.			Positive
				Oct. 26, 5.30 A.M.			Positive
				Oct. 26, 10.30 A.M.			Positive
				Oct. 26, 12.30 P.M.			Positive
				Oct. 26, 2.00 P.M.			Negative
10.	Garr,	3 yrs.	Cretinism	Oct. 27,	Urotropin, gr. iii. given		
				Oct. 27, 8.30 A.M.	1-4-7 A.M.		Positive?
				Oct. 27, 1.00 P.M.			Negative
				Oct. 28, 6 A.M.		Acid	Positive
11.	Boyden,	11 wks.	Regulation of feeding		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 1.30 A.M.			Negative
				Oct. 27, 10.00 A.M.			Positive
				Oct. 27, 9.30 P.M.			Negative
	(Formaline is, therefore, excretedin an 11-weeks baby.)						
12.	Keaney,	10 mos.	Scorbutus		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 6.30 A.M.			Positive
				Oct. 27, 3.30 P.M.			Positive
13.	Jacobs,	6 mos.	Regulation of feeding		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 11 A.M.			Positive
				Oct. 27, 10.30 P.M.			Positive
14.	Koplan,	7 mos.			Urotropin, gr. 1½ given		
				Oct. 29	at 9-12-3 P.M.		Positive
15.	Zals,	5 yrs.	Fracture of skull		Urotropin gr. iii. 3 times a day at 10 A.M.- 2 and 6 P.M.		
				Oct. 30, 1 P.M.		Alkaline	Negative
				Oct. 31, 3.30 A.M.		Acid	Negative
				Oct. 31, 9.00 A.M.		Alkaline	Negative
				Oct. 31, 10.00 A.M.		Neutral	Negative
				Oct. 31, 1.00 P.M.		Weakly Ac.	Negative
	(These acid urines are on the border line of alkalinity.)			Nov. 1, 2 A.M.		Neutral	Positive?
				Nov. 1, 7.30 A.M.		Alkaline	Negative
				Nov. 1, 10.30 A.M.		Weaky Ac.	Negative
				Nov. 1, 1.00 P.M.	Dose increased to 7 grains.	Weakly Ac.	Negative
				Nov. 2, 3 A.M.		Faintly Ac.	Negative
				Nov. 2, 7 A.M.		Alkaline	Negative
				Nov. 2, 8.30 A.M.		Alkaline neutral	Negative
				Nov. 2, 11 A.M.		Acid	Positive
				Nov. 2, 2.30 P.M.		Acid	Positive
				Nov. 2, 3.30 P.M.		Acid	Positive

NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
Zale—Continued.			Nov. 2, 4 P.M.		Acid	Negative
			Nov. 2, 5.30 P.M.		Acid	Positive
				Dose increased to gr. x, given at same time		
			Nov. 2, 8 P.M.		Acid	Positive
			Nov. 2, 1.30 A.M.		Acid	Positive
			Nov. 2, 4 A.M.		Acid	Positive
16. Shean,	7 yrs.	Unbilical hernia		Urotropin, gr. iii, 3 times a day at 10 A.M. 2 and 6 P.M., P. C.		
			Oct. 30, 8.30 A.M.		Alkaline	Negative
			Nov. 3	Dose increased to gr. v, every 6° (i.e. 6-12-6-12)		
			Nov. 3, 5 P.M.		Faintly Ac.	Negative !
			Nov. 3, 8 P.M.		Acid	Negative
			Nov. 4, 6 A.M.		Acid	Positive
			Nov. 4, 5 P.M.		Acid	Positive
			Nov. 5, 2 A.M.		Acid	Positive
			Nov. 5, 9.10 A.M.		Acid	Positive
17. Fuccio,	5 yrs.	Typhoid fever		Urotropin, gr. iii, every 6°		
			Oct. 31		Neutral	Negative
			Oct. 31, 9 P.M.		Weakly Ac.	Negative
			Nov. 1, 3.50 P.M.		Weakly Ac.	Negative
			Nov. 1, 4 A.M.		Weakly alkaline	Negative
				Dose increased to 6 gr.		
(This tested at 11 P.M., and again 12 hours later. The test was positive in both instances despite the fact that the urine was practically neutral by the second test.)			Nov. 1, 8 P.M.		Alkaline	Negative
			Nov. 2, 4 A.M.		Acid	Positive?
			Nov. 2, 8.30 A.M.		Acid	Positive
			Nov. 2, 3.30 P.M.		Acid	Positive
			Nov. 2, 11 P.M.		Acid	Positive
			Nov. 3, 4 A.M.		Acid	Positive
			Nov. 3, 4 P.M.		Acid	Positive
			Nov. 4, 10.30 P.M.		Faintly Ac.	Positive
			Nov. 4, 4 A.M.		Faintly Ac.	Positive
			Nov. 4, 1.15 P.M.		Faintly Ac.	Positive
			Nov. 4, 4 P.M.	Dose changed to 10 grs. 3 times a day; pot. citrate gr. x 3 times a day and sod. bicarb. gr. xxx. every six hours.	Acid	Positive
			Nov. 4, 8 P.M.		Acid	Positive
			Nov. 4, 11 P.M.		Acid	Positive
			Nov. 5, 8 A.M.		Strongly alk.	Negative
			Nov. 5, 8 P.M.		Strongly ac.	Positive
			Nov. 6, 4 A.M.		Faintly Ac.	Positive
Same spec.+H2SO4+heat, was positive.			Nov. 6, 8 A.M.		Strongly alk.	Negative
			Nov. 6, 1 P.M.		Acid	Positive
			Nov. 6, 8 P.M.		Acid	Positive
(Midnight alkalies are omitted.)			Nov. 7, 4 A.M.		Faintly ac.	Positive
			Nov. 7, 5 A.M.		Alkaline	Negative
			Nov. 8, 6 A.M.	Urotropin omitted.		
			Nov. 8, 7.30 A.M.		Alkaline	Negative
			Nov. 8, NOON		Acid	Positive
			Nov. 9, 4 A.M.		Acid	Negative
			Nov. 9, 5 A.M.		Alkaline	Negative
			Nov. 9, 2.58 P.M.	Urotropin, gr. vi, 1 dose.		
			Nov. 9, 3.15 P.M.	Catheterized at		
			Nov. 9, 3.15 P.M.		Acid	Negative
			Nov. 9, 3.16 P.M.		Acid	Negative
			Nov. 9, 3.18 P.M.		Acid	Negative
			Nov. 9, 3.20 P.M.		Acid	Negative
			Nov. 9, 3.30 P.M.		Acid	Negative
			Nov. 10, 7.15 P.M.		Acid	Positive
			Nov. 10, 1.30 P.M.		Acid	Positive
			Nov. 10, 6 P.M.		Acid	Negative
			Nov. 12, 4 P.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
18.	Olmstead,	8 mos.	Pyelitis		Urotropin, 10 grs. in 24°		
				Nov. 2, 5.30 P.M.		Weakly Ac.	Positive
				Nov. 4, 3 A.M.		Acid	Negative
				Nov. 5, ?		Acid	Positive
				?		Acid	Positive
19.	Halloran,	3 mos.	Feeding		Urotropin gr. i, at 2-4 and 6		
				Nov. 3, 6.30 A.M.		Acid	Positive
				Nov. 4, 5 A.M.		Acid	Positive
20.	McNeil,	4 yrs.	Bile fistula fol. operation	Nov. 3. Bile collected from fistula and tested immediately. No formaline.	Urotropin, gr. v, 3 times a day, started Nov. 5.		
	(This bile boiled with H2S04 and tested for formaldehyde was negative.)			Nov. 5, Bile 4 P.M. Urine 4 P.M.			Negative Positive
				Nov. 12, 2.30 P.M.		Acid	Negative
	Same+H2S04+heat						Negative
				Nov. 12, 5.30 P.M.		Acid	Negative
	Same+H2S04+heat						Negative
				Nov. 15, 7 A.M.		Acid	Negative
				Nov. 15, 2.30 P.M.		Acid	Negative
				Nov. 16, 4 A.M.		Acid	Positive
				Nov. 16, 8.30 A.M.		Acid	Positive
				Nov. 16, 2 P.M.		Acid	Positive
				Nov. 16, 5.15 P.M.		Acid	Negative
	Same+H2S04+heat						Negative
				Nov. 17, 1 A.M.		Acid	Negative
				Nov. 17, 6 A.M.		Acid	Positive
				Nov. 17, 11 A.M.		Acid	Positive
				Nov. 17, 5 P.M.		Acid	Positive
				Nov. 17, 10 P.M.		Acid	Positive
				Nov. 18, 2 P.M.		Acid	Positive
				Nov. 18, 3 P.M.		Acid	Positive
				Nov. 18, 12.30 P.M.		Acid	Positive
				Nov. 18, 8 P.M.		Neutral	Negative
				Nov. 18, 5 P.M.		Neutral	Negative
	Same+H2S04+heat						Positive
				Nov. 19, 6 A.M.		Acid	Positive
				Nov. 19, 7.30 A.M.		Alkaline	Negative
				Nov. 19, 12 P.M.		Alkaline	Negative
				Nov. 4.15 P.M.		Acid	Negative
				Nov. 20, 1 A.M.		Acid	Negative
				Nov. 20, 1.30 P.M.		Acid	Positive
				Nov. 20, 5.30 P.M.		Acid	Positive
21.	McCarron,	2 yrs.	Cleft palate		Urotropin, gr. v, every 6°		
				Nov. 4, 5 A.M.			Positive
22.	Hardy,	2 yrs.	Cleft palate		Urotropin, gr. v, every 6°		
				Nov. 4, 5 A.M.			Positive
				Nov. 5, 5 A.M.		Acid	Positive
23.	Hurwick,	7 yrs.	Burn		Urotropin, gr. ? sod. bicarbonate gr.?		
				Nov. 5, 11.30 A.M.		Faintly alk.	Negative
				Nov. 6, ?		Neutral	Negative
				Nov. 7, 5 A.M.		Ac.++	Positive
				Nov. 7, 6.15 P.M.		Ac.++	Positive
				Nov. 7, 3 P.M.		Alkaline	Negative
				Nov. 8, 1 A.M.		Acid	Positive
				Nov. 8, 3 P.M.		Alkaline	Negative
				Nov. 9, 5.30 P.M.		Acid	Negative
				Nov. 10, 4 A.M.		Acid	Positive
	H2S04+heat gives negative reaction with all these specimens.			Nov. 10, 3.30 P.M.		Acid	Negative
				Nov. 10, 5.30 P.M.		Acid	Negative

NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
Hurwick—Continued.			Nov. 10, 6.30 P.M.		Acid	Negative
			Nov. 11, 4 A.M.		Acid	Positive
			Nov. 11, 11.30 A.M.		Alkaline	Negative
			Nov. 11, 3.30 P.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 12, 2 A.M.		Acid	Negative
			Nov. 12, 9.10 A.M.		Acid	Negative
			Nov. 12, 1 P.M.		Acid	Positive
			Nov. 13, 12 A.M.		Acid	Negative
			Nov. 13, 3 A.M.		Acid	Negative
			Nov. 13, 8 A.M.		Acid	Positive
			Nov. 13, 3 P.M.		Alkaline	Negative
			Nov. 13, 5.15 P.M.		Acid	Negative
			Nov. 13, 11.30 P.M.		Alkaline	Negative
			Nov. 14, 2 A.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 15, 1.45 P.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 16, 8.45 A.M.		Acid	Negative
			Nov. 16, 4.45 A.M.		Acid	Negative
			Nov. 17	Dose increased to 10 gr., every 6°		
			Nov. 17, 3 A.M.		Acid	Positive
			Nov. 17, 6 A.M.		Faintly ac.	Negative
			Nov. 17, 2.20 P.M.		Faintly ac.	Negative
			Nov. 17, 4 P.M.		Faintly ac.	Negative
			Nov. 17, 8 P.M.		Alkaline	Negative
			Nov. 18, 3 P.M.		Acid	Positive
			Nov. 18, 5.30 P.M.		Faintly ac.	Negative
			Nov. 18, 8 P.M.		Faintly ac.	Negative
Same+H2SO4+heat			Nov. 18			Positive
24. Dellis,	14 mos.	Epilepsy		Urotropin, gr. v, every 6°		
			Nov. 7, 6.30 A.M.		Acid	Positive
25. Quigley,	4 yrs.	Dislocated cervical vertebrae		Urotropin, gr. iv, every 6° (12-6-12-6)		
			Nov. 9, 6 A.M.		Acid	Negative
			Nov. 9, 1 P.M.		Acid	Positive
			Nov. 9, 6.15 P.M.		Alkaline	Negative
Same+H2SO4+heat						Positive
			Nov. 10, 5 A.M.		Acid	Positive
			Nov. 10, 4 P.M.		Alkaline	Negative
			Nov. 11, 6.15 P.M.		Acid	Negative
			Nov. 12, 3.30 P.M.		Acid	Positive
			Nov. 14, 7.30 A.M		Acid	Negative
26. Smith				Urotropin.		
			Nov. 9, 5.45 P.M.		Acid	Negative
			Nov. 10, 12.30 A.M.		Acid	Positive
			Nov. 10, 4 A.M.		Acid	Positive
			Nov 10, 10 A.M.		Acid	Positive
			Nov. 11, 1 A.M.		Acid	Negative
			Nov. 11, 10.30 A.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 11, 1.15 P.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 11, 5.15 P.M.		Acid	Positive
			Nov. 12, 10 A.M.		Alkaline	Negative
Same+H2SO4+heat						Positive
			Nov. 12, 1 P.M.		Alkaline	Negative
Same+H2SO4+heat						Positive
			Nov. 12, 4 P.M.		Acid	Negative
Same+H2SO4+heat						Negative
			Nov. 12, 6 P.M.		Acid	Negative
			Nov. 13, 11.30 A.M.		Acid	Negative
			Nov. 13, 10 A.M.		Neutral	Negative
			Nov. 13, 2.30 A.M.		Neutral	Negative
			Nov. 13, 3 A.M.		Acid	Negative
			Nov. 13, 4 A.M.		Acid	Negative
			Nov. 13, 6 A.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
27.	Anidoc,	10 mos.	Pneumonia		Urotropin, gr. iii, every 6°		
				Nov. 14, 4 A.M.		Acid	Negative
				Nov. 14, 1.30 P.M.		Acid	Negative
				Nov. 15, 1.30 P.M.		Acid	Negative
				Nov. 18, 7.30 P.M.		Acid	Positive
28.	Greenfield,	2 yrs.	Cretinism Pneumonia		Urotropin, gr. vi, every 6°		
				Nov. 15, 11 A.M.			Positive
				Nov. 15, 2 P.M.		Acid	Negative
				Nov. 15, 8 P.M.			Positive
				Nov. 16 11.30 A.M.		Acid	Positive
29.	Harris,	2 yrs.	Pes valgus	Nov. 23		Alkaline	Negative
	Same specimen + H2SO4 + heat						Negative
				Nov. 28		Alkaline	Negative
	Same specimen + H2SO4 + heat						Positive
30.	Sarokioki,	3 yrs.	Acute tonsillitis		Urotropin, gr. v, 4 times a day.		
				Nov. 19			Positive
31.	Vetrani,	15 mos.	Acute otitis media		Urotropin, gr. iv, and sodium benzoate, gr. iii, every 6°		
				Nov. 21		Acid	Positive
32.	Castellani,	3 yrs.	Femoral abscess		Urotropin, gr. iv, 3 times a day.		
				Nov. 23, 5.30 P.M.		Acid	Positive
				Nov. 24, 4 P.M.		Acid	Negative
	Same + H2SO4 + heat						Negative
33.	Marketonio,	3½ yrs.	Osteo-myelitis		Urotropin, gr. vi, at 12 and 3.		
				Nov. 19, 5 A.M.		Acid	Positive
34.	Tobin,	4 yrs.	Appendicitis post operation		Urotropin, gr. vi, every 4°		
				Nov. 19, 1 A.M.		Acid	Positive
				Nov. 27, 1.30 P.M.		Alkaline	Negative
35.	Shrier,	5 yrs.	Pyelitis		Urotropin, gr. v, 4 times a day.		
				Nov. 21		Acid	Positive
36.	Goldberg,	7 yrs.	Pyelitis		Urotropin, gr. v, 4 times a day.		
				Nov. 27, 9 A.M.		Faintly ac.	Positive
37.	Rogers,	3 yrs.	Hydrocephalus		Urotropin, gr. iv, 4 times a day.		
				Nov. 26, 5 P.M.	Dose increased at	Acid	Negative
				Nov. 26, 11.15 P.M.	midnight to gr. viii	Acid	Negative
				Nov. 27, 4 A.M	every six hours (i.e.	Acid	Negative
				Nov. 27, 3.30 P.M.	12-6-12-6).	Very ac.	Positive
				Nov. 27, 4.20 P.M.		Very ac.	Positive
				Nov. 27, 5.20 P.M.		Very ac.	Positive
				Nov. 28, 5 A.M.		Acid	Positive
				Nov. 28, 6 P.M.		Acid	Positive
				Nov. 28, 12.10 P.M.		Acid	Positive
				Nov. 29, 6.15 A.M.		Acid	Negative

Note: This child did not show the test for formaline until the dose was increased.

	NAME.	AGE.	DIAGNOSIS.	DATE	DOSE.	REACTION.	TEST.
38.	O'Neil,	10 yrs.	Pyelitis		Urotropin, gr. v, 3 times a day.		
				Nov. 26, A.M.			Positive
				Nov. 27	Pot. citrate, gr. 40 a day commenced.		
				Nov. 27, 4 P.M.		Alkaline	Negative
	Same+H2SO4+heat.						Positive
39.	Koniar,	9 yrs.	Pneumonia		Urotropin, gr. ?		
				Nov. 27, 4.30 P.M.		Acid	Negative
				Nov. 28, 1.30 A.M.		Alkaline	Negative
	Same+H2SO4+heat						Negative
				Nov. 28, 9.30 A.M.		Acid	Positive
				Nov. 28, 11 A.M.		Neutral	Negative
				Nov. 28, 5.30 P.M.		Acid	Negative
				Nov. 28, 9.15 P.M.		Neutral	Negative
				Nov. 28, 8 P.M.		Neutral	Negative
				Nov. 28, 10 P.M.		Acid	Positive
				Nov. 29, 5.30 A.M.		Acid	Positive
				Nov. 29, 9 A.M.		Acid	Negative
				Nov. 29, 2 P.M.			Negative
	Same+H2SO4+heat					Alk.-neut.	Negative
				Nov. 29, 3.30 P.M.		Alk.-neut.	Negative
				Nov. 29, 8.30 P.M.		Faintly ac.	Positive
				Nov. 30, 2.30 A.M.		Acid	Positive
				Nov. 30, 12 NOON		Acid	Positive
				Dec. 1, 5.45 A.M.		Acid	Positive
40.	O'Brien,	4 yrs.	Pneumonia		Urotropin, gr. viii, every 6°		
				Nov. 29.		Acid	Negative
				Nov. 30, 1.10 A.M.		Neutral	Negative
				Nov. 30, 5 P.M.		Neutral	Negative
				Dec. 1, 4.30 A.M.		Acid	Negative
				Dec. 1, 9 A.M.		Alkaline	Negative
				Dec. 1, 5 P.M.		Acid	Negative
				Dec. 2, 1 A.M.		Acid	Negative
				Dec. 2, 10 A.M.		Alkaline	Negative
				Dec. 5, 5 A.M.		Acid	Negative
				Dec. 6, 2 A.M.		Acid	Positive
				Dec. 6, 6 A.M.		Acid	Positive
				Dec. 7, 1 P.M.		Acid	Positive
41.	Goulis,	5 yrs.	Pneumonia		Urotropin, gr. viii, ac. sod. phos., gr. v, every 6°, started Nov. 29.		
				Nov. 29, 4 P.M.			Negative
				Nov. 30, 5 P.M.		Alkaline	Negative
				Nov. 30, 5.30 P.M.		Acid	Negative
				Dec. 1, 12.45 P.M.		Acid	Negative
				Dec. 1, 4.30 P.M.		Alkaline	Negative
	Same dosage.			Dec. 8, 8.30 A.M.		Acid	Positive
				Dec 7, 12 MIDNIGHT		Acid	Positive
				Dec. 8, 12 MIDNIGHT		Acid	Positive +Intense
42.	McLaughlin,	15 mos.	Tetany	Dec. 3, 11 P.M.	Urotropin, gr. iv,		
				Dec. 4, 2 A.M.	Urotropin, gr. iv.		
				Dec. 4, 8 A.M.		Acid	Positive
				Dec. 4, 12 NOON		Acid	Positive
43.	Langford,	7 mos.	Tetany Chr. intestinal indigestion	Dec. 9, MIDNIGHT	Urotropin, started gr. iii, every 6°		
				Dec. 10, A.M.		Acid	Positive
44.	Snow,	16 mos.	Pneumonia	Dec. 6, 12 P.M.	Urotropin, gr. v, every 6°		
				Dec. 7		Acid*	
		Temp. 104°		Dec. 8, 3.40 P.M.		Acid	Positive

*Negative repeated with heat and acid= negative.

COXA VARA: SOME OBSERVATIONS ON THIS CONDITION WITH ESPECIAL REFERENCE TO THE QUESTION OF SPONTANEOUS RECOVERY FROM THIS DEFORMITY.

BY JAMES WARREN SEVER, M.D., BOSTON.

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A LARGE proportion of the cases seen at an orthopedic clinic for children are those which present rachitic deformities of the lower extremities. These deformities are usually bow legs or knock knees of a greater or less degree, according to the age and condition of the child.

There is one other condition, however, namely, coxa vara, which is present in nearly all of these cases, and which many times escapes attention on account of the more obvious deformity of knock knees or bow legs. Coxa vara is, however, a very real deformity, and produces constant and definite results. It consists of a reduction of the normal angle of the neck of the femur with the shaft from an oblique towards a right or even an acute angle. The normal angle of the neck of the femur with the shaft at birth is said to be about 160 degrees. This decreases during growth, until adult life is reached, when the angle averages from 110 to 140 degrees. When growth is completed, the angle, as a rule, remains fixed.

It has been stated that coxa vara usually occurs with bow legs, and coxa valga, or an increase in the normal angle of the neck with the shaft, with knock knees. In this series there have been no cases of coxa valga, although there have been cases of both knock knees and bow legs. The average angle of the neck of the femur found in these cases, from measurements of x-ray tracings, regardless of age, sex or accompanying bow legs or knock knees, was:

Right leg,	125 degrees plus
Left leg,	124 degrees plus
Average in knock knees,	112 degrees plus
Average in bow legs,	124 degrees plus
Total number of knock knees,	6
Total number of bow legs,	17

It is obvious then that in knock knees there exists a greater degree of coxa vara than in bow legs. This seems reasonable in view of the fact that in knock knees the line of weight-bearing falls outside the knee joint, which tends to bring a greater strain on the femoral neck than is the case in bow legs, where the weight-bearing line falls inside the knee joint, and so tends to make the neck of the femur act like a spoke in a dished wheel, bringing it in line with the weight-bearing as the body rests on that leg. In all the cases studied rickets was the underlying cause of their various deformities. The cases were studied carefully over periods of from one to three years, and x-ray and other tracings were taken at various intervals.

CAUSES.

There are many causes of coxa vara, but it is most frequently seen in rickets, osteomalacia, tuberculosis of the hip and osteomyelitis, arthritis deformans and following trauma. In these cases the cause was always rickets, and the deformity was a static one due to superincumbent weight either in standing or sitting.

The sitting position has often been overlooked as a cause of coxa vara in these cases, but when the bones are soft as in rickets it may be readily produced without any standing position ever having been taken by the child. When the child sits, as children usually do, in the acute or subacute stage of rickets, with the legs either straight or crossed in front of them, there is the weight of the trunk exerting a counter pressure on the thighs, which tends to fix and displace backward the upper portion of the femur. This condition, combined with the pull of the psoas, iliacus and adductors, tends to increase the flexion deformity in connection with the increased pull of the ham strings and the tensor fascia lata. This position eventually leads to the flexion deformity seen in these cases of coxa vara, with the tendency to outward rotation with the legs extended.

The sitting position also favors flexion of the sacrum forward on the iliac bones and a consequent depression and forward displacement of the promontory of the sacrum, thus aiding in the production of the flexed position and lordosis in the erect position. The neck of the femur is depressed more than normal, with usually a forward bend to the neck, so that the trochanter is displaced backward and upward. The forward bend to the neck shortens the posterior aspect of the neck, which accounts partially for the limitation of abduction, on account of the bony impact of the trochanter on the ilium. The limitation of abduction by muscular forces is probably secondary to the effect of the coxa vara. That is, the muscles are shortened as a result of the coxa vara and not primarily. The change of the angle of the neck of the femur to the shaft does not cause a contraction of the muscles primarily, for theoretically in abduction the adductors travel through an arc at their periphery. Practically, however, as the muscles slacken, due to their decreased pull, on account of the raising of their point of insertion, they shorten.

The position of the head of the femur in abduction limits abduction, on account of its relation to the acetabulum; for on account of its sinking, its articular surface is displaced downward and forward, thus limiting the apposition of the joint surfaces. The backward concavity of the neck causes bony resistance and limitation of full and adequate outward rotation.

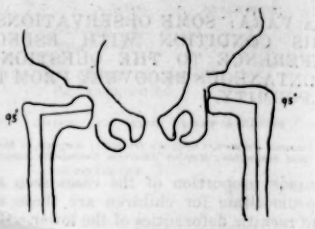
SYMPTOMS.

The usual picture seen in a case of coxa vara is as follows: When the child stands there may

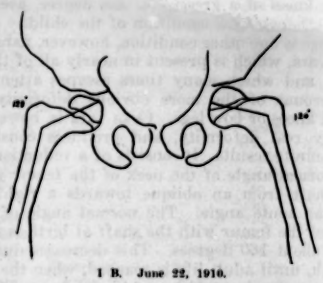
be the usual knock knee or bow leg deformity, although of course coxa vara may exist quite independently of these other conditions. There is usually a markedly protuberant abdomen with a hollow back or lordosis. The degree of protuberance, apart from the usual big belly of the rachitic child, is more or less directly associated with the degree of hollow back present. There is also more or less flexion of the thighs on the abdomen and flat foot. The trochanters are usually found at or well above Nélaton's line, and the horizontal distance between the trochanters is increased. In lying down there is always a constant limitation of normal motion in abduction and hyperextension of the thigh on the body. This limitation of hyperextension is due to the shortening of the iliacus and psoas muscles principally, and the limitation of abduction to the high and backwardly displaced trochanter which impinges on the ilium in abduction. Shortening of the adductor groups of muscles may play a secondary part in this limitation also. The legs lie naturally in an outwardly rotated position due to the shortening of the previously mentioned muscles and the forward convexity of the neck of the femur. In standing the lordosis and pelvic tilt is largely due to this muscle shortening. In walking there is a noticeable waddling gait similar to that seen in cases of congenital dislocation of the hip.

A few of the characteristic cases will be described and the tracings, which were taken from the child and from X-Rays of the hip, shown.

CASE 1. Girl, aged two and three-quarters; bow legs; seen Feb. 1, 1909; began to walk at ten months, bowing of legs since walking. Skull square, fontanelle closed, lumbar lordosis, marked rosary and epiphyseal enlargement at wrists and ankles. Slight bowing of femora, with double bow leg. Stands with marked bowing of legs, most marked in upper third of tibiae, where there is also backward bowing. Knees relaxed, external condyles enlarged. Abdomen protuberant. Motions at hip limited in internal rotation and hyperextension. Abduction of legs 24 degrees. Fitted to bow leg irons. See tracing I and x-ray tracing I A.



I A. Feb. 1, 1909.



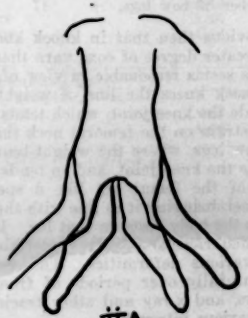
I B. June 22, 1910.

On June 22, 1910, a year and a half later, this child was examined again. There was still considerable bowing of the legs, especially of the left, with backward deformity at the knee. Both feet were flat. The abdomen was protuberant, but lordosis was not marked. Epiphyses at wrist still noticeable. Knees relaxed. No coxa vara clinically. No limitation of hyperextension or abduction. See x-ray tracing I B. Note increase in angle of neck of femur from 95 degrees to 120 degrees plus.

CASE 2. Girl, age four; seen Dec. 30, 1908; knock knees; walking at fourteen months. Head large. Fontanelle closed. Left dorsal, right lumbar scoliosis, marked backward bowing of outer third of clavicles. Rosary and enlarged epiphyses at wrist. Slight outward bowing of femora and outward bowing of lower legs with knock knees. Flat feet. Stands with marked knock knee, left knee behind



I.



II A

right with right overlapping. Thighs flexed in standing with knees bent. No special lordosis. Marked limitation of hyperextension, and abduction. See tracing II A. On Jan. 7, 1909, she had a double McEwen osteotomy performed for the relief of her knock knee.



On June 20, 1910, about a year and a half later, her condition was as follows; Stands with very slight flexion of thighs on abdomen. Still slight knock knee. Internal rotation and abduction of thighs slightly limited. See tracing II B. X-ray tracings of this case were not taken on account of unsatisfactory plates.

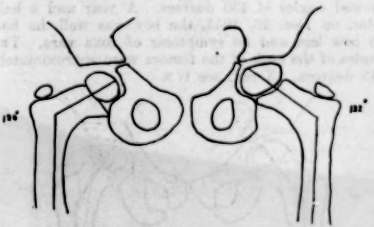
CASE 3. Girl, age four; seen Feb. 2, 1909; knock knees and anterior bow legs. Skull square, lumbar lordosis, rosary, epiphyses enlarged, Harrison's sulcus present. Marked anterior bowing of lower third of tibiae, coxa vara, knock knee and flat foot. Stands with marked flat foot and flexion of thighs on abdomen. Marked limitation of hyperextension of thighs. Knee joints very lax. Marked outward bowing of femora. Limitation of abduction of thighs, legs lie in a position of outward rotation. See tracing III A and x-ray tracing III A. Operation Feb. 5, 1909, osteotomy for anterior bowing of lower legs.

Operation Oct. 13, 1909, double epiphysealysis of the femora. Nine months later was much improved. Stood with very slight lordosis, no knock knees, good motion in abduction. See tracings III B and x-ray tracing III B.

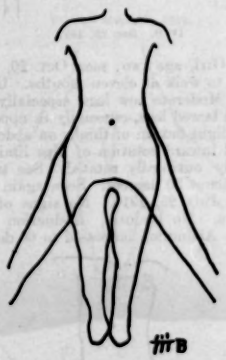


III A. Jan. 16, 1909.





III B. July 22, 1910.

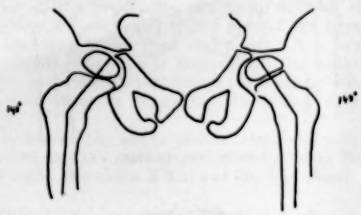


CASE 4. Boy, age three; seen July 18, 1908; bow legs; started to walk at ten months. Usual rachitic signs. Stands with marked outward bowing of femora and lower legs. Backward bowing of upper end of left tibia. Slight lumbar lordosis, all outward and inward rotation limited, also hyperextension. X-ray tracings at this date showed the angles of the neck of the femora to the shaft to be respectively 125 to 138 degrees. Braces to legs. X-ray, see IV A.



IV A. Jan. 2, 1909.

Two years later, on July 25, 1910, he had increased only two pounds in weight, which was 31¾ pounds. Stood with no marked lordosis, very little bowing of legs. Internal rotation was not limited, nor was abduction. The x-ray tracings at this date showed angles of 130 degrees. A year and a half later, on Dec. 23, 1911, the boy was well, he had no bow legs and no symptoms of coxa vara. The angles of the neck of the femora were approximately 145 degrees. X-ray, see IV B.

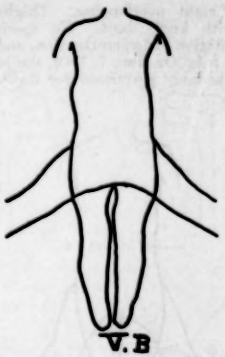


IV B. Dec. 23, 1911.

CASE 5. Girl, age two; seen Oct. 20, 1908; bow legs; began to walk at eleven months. Usual signs of rickets. Moderate bow legs, especially of tibiae. Stands with bowed legs, especially in upper third of tibiae and slight flexion of thighs on abdomen. Abduction and inward rotation of hips limited. Legs lie naturally outwardly rotated. See tracing V A. Abduction about 30 degrees. Seen again about two years later, July 25, 1910. No signs of bow legs or coxa vara. No lordosis. Abduction free. See tracing V B. Abduction increased to 60 degrees.



V A



V B

CASE 6. Girl, age four; bow legs; seen Feb. 8, 1909; began to walk at eleven months. Usual rachitic signs. Stands with lumbar lordosis; with outward bowing of legs, especially lower tibiae. Both thighs flexed on abdomen. Trochanters high and back, abduction limited. Hyperextension and inward rotation limited. Lies with legs outwardly



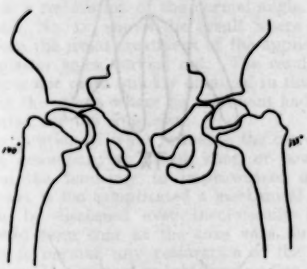
VI A



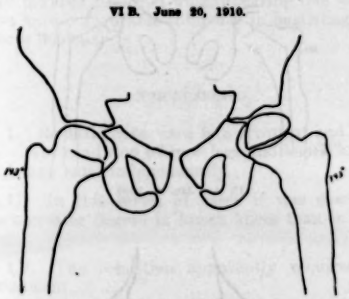
VI B

rotated. See body tracing VI A. Abduction about 30 degrees. Osteotomy of both lower legs, Feb. 19, 1909, for correction of bow legs. Seen fifteen months later, on Apr. 10, 1912. Legs straight, abduction normal, no signs of coxa vara. See body tracing VI C and X-ray tracing of same date, VI C.





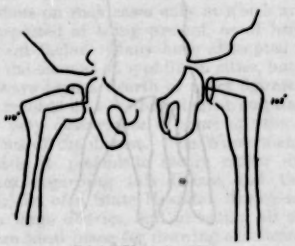
VI B. June 20, 1910.



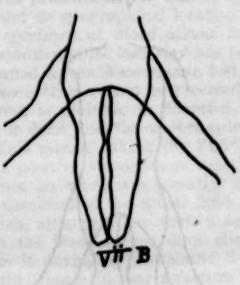
VI C. Apr. 10, 1912.

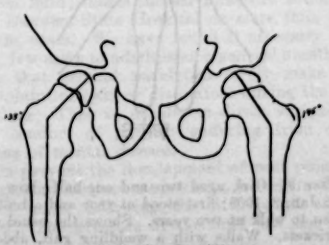
Case 7. Boy, age 3; seen March 8, 1909; bow legs; began to walk at sixteen months. Slight general signs of rickets. Slight outward bowing of femora and tibiae in upper third. Lies with legs outwardly rotated. Abduction and hyperextension at hips limited. Stands with slightly protuberant abdomen and tilt forward to pelvis. Tracing of legs taken. See VII A and X-ray tracing VII A. Note: Angle of neck of femur to average about 107 degrees. Child fitted to bow leg irons. He was seen again about fourteen months later, when he showed improvement. A year and a half later still, on Dec. 20, 1911, his legs were straight, and the tracing VII B and X-ray tracing VII B are self explanatory. There was no limitation of hyperextension or abduction, and the child stood naturally. Note increase in angle of neck of femur.





VII A. March 8, 1909.





VII B. Dec. 20, 1911.

CASE 8. Girl, age five and three-quarters; seen Jan. 27, 1909; bow legs; began to walk at ten months. Large square head, clavicles short and broad, axillae wide, upper ends of humeri enlarged and bowed forward and outward. Epiphyses at wrist very much enlarged. Stands with thighs flexed about 15 degrees; lumbar lordosis increased. Femora bowed forward and outward. Internal condyles enlarged. Marked anterior bowing of lower third of tibiae, with moderate lateral bowing. Sits on haunches with thighs and knees flexed and feet flat on ground. Limitation of inward rotation, abduction and hyperextension of thighs. See tracing VIII A.

Two days later both tibiae were osteotomized for the correction of the anterior bowing. A year and a half later, on June 15, 1910, the condition was much improved. The bow legs were cured, and the motions at the hip were considerably increased. See tracing VIII B.



VIII A



VIII B

CASE 9. Girl, aged two and one-half; bow legs; seen Jan. 2, 1909; first stood at year and a half and began to walk at two years. Shows the usual signs of rickets. Walks with a waddling gait, abdomen protuberant, lies with legs outwardly rotated about 15 degrees. Flexion at hip normal, abduction limited, adduction and inward rotation normal, considerable forward tilt to pelvis, and stands with marked lordosis. Hyperextension markedly limited. See body tracing IX A and X-ray tracing IX A Abduction about 30 degrees.

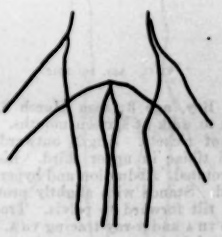
A double plaster spica was applied with the legs fully abducted, which was worn until March 21, 1909, resulting in a gain of about five degrees abduction. No treatment after that date. Seen again Apr. 10, 1912, when there was practically normal abduction of the thighs and no sign of coxa vara. See body tracing IX B and X-ray tracing IX B.



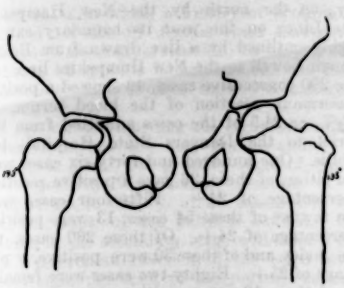
IX A



IX A. Jan. 2, 1909.



IX B



IX B. Apr. 10, 1912.

This series gives one a sufficiently clear idea of the general run of the cases, besides showing how the condition of coxa vara tended gradually towards a restoration of the normal angle. The last case, No. IX, shows the result where there had been the usual treatment of the application of a plaster spica carried out. The result was no better nor more quickly obtained in this case than in the others where no treatment had been instituted for the condition.

The question of what influence the correction or the accompanying knock knee, or bow legs has on the tendency to improvement of the coxa vara is too complicated a mechanical problem to be discussed even theoretically here. It would seem that as the coxa vara tends to return to normal, any restoration of the lower legs towards a normal weight bearing line would also have a favorable influence in hastening the above tendency.

CONCLUSIONS.

1. Rachitic coxa vara is a frequent and concomitant condition of bow legs and knock knees, but may exist independently.

II. In this series of cases it was observed to a greater degree in knock knees than in bow legs.

III. The condition apparently requires no treatment.

IV. The correction of a co-existing condition of knock knees or bow legs may hasten the process of recovery from coxa vara. I have, however, no evidence on this point.

V. In all cases there is a tendency to spontaneous recovery and a restoration towards the normal angle of the neck of the femur without treatment, and with no cessation from use or weight bearing.

VI. There is probably very little or no permanent disability in the average case.

RESULTS OF THE WASSERMANN IN TWO HUNDRED CONSECUTIVE ADMISSIONS TO THE DANVERS STATE HOSPITAL.*

BY HARLAN L. PAINE, M.D.,

Assistant Physician, Danvers State Hospital.

This study of a small, unselected series of two hundred cases of mental disease, tested by the Wassermann method, was made for the purpose of determining the nature and scope of the problems involved in the geographical distribution of syphilis in Massachusetts. Also, it was to ascertain the relative amount of syphilis among the insane.

This paper, using a smaller number of cases, was read before the Essex South Division of the Massachusetts Medical Society, on October 1, 1912.

In the early part of May, 1912, it was decided that the Wassermann test for syphilis should be done in every case admitted to the Danvers State Hospital. Previous to that time the test was being done on such cases only in which syphilis was suspected of being present, or of being an etiological factor. Many have attempted to estimate the amount of syphilis in cities, but there has always been a dearth of exact figures, even in the records of a well-conducted hospital, due to the very obscureness of some of the manifestations of the disease. The Wassermann test has made it possible to secure rather definite statistics regarding this disease, and the admitting list of a State Hospital, drawn as it is from a large district, and including all classes, offers an ideal place for drawing conclusions regarding the presence of the disease in the community, and its geographical location. Accordingly, a specimen of blood serum from every patient admitted since last May has been taken, and subjected to the Wassermann test for syphilis. Whenever a report is received that the blood serum is positive, or doubtful, a lumbar puncture is done, and the cerebro-spinal fluid is taken. This means, taking the 24.5% of cases showing a positive Wassermann reaction on the blood serum, on which it is a routine measure to secure a specimen of the spinal fluid, and those cases which, although they show a negative reaction on the blood serum show clinical signs that make it advisable to examine the cerebro-spinal fluid; that a lumbar puncture is done in the Danvers State Hospital on more than 25% of the cases. We have found it necessary only in a few cases to administer a general anesthetic, also that general paralytics rarely make any complaint of pain or discomfort during the proceeding. This is usually in direct variance to the conduct of patients suffering from other forms of mental disease.

To prevent the development of post puncture symptoms, all patients are kept in bed for forty-eight hours following the withdrawal of the fluid. The pressure of the fluid has also been

* No. 27 of the Danvers State Hospital Series.

measured in centimeters of water, but as yet the series of cases in which the pressure registering apparatus has been used is too small for any conclusions to be drawn.

The fluid is not only tested for the Wassermann reaction, but the cell-count, Nonne, and Noguchi tests are done. The Wassermann test on the blood serum and spinal fluid have been done in the laboratory of serum diagnosis of the Harvard Medical School, under the direction of Dr. W. P. Lucas. The Nonne and Noguchi tests and the cell-count of the spinal fluid have been done in the Danvers State Hospital Laboratory.

The operation of venesection for obtaining a sufficient quantity of blood for the Wassermann reaction is not a formidable one. The procedure is very simple and rapid; with trained assistants a specimen of blood can be taken every four minutes. The technic is as follows:—

The anterior surface of the forearm at the elbow is cleansed by brisk scrubbing with a stiff brush and soap and water. Then a solution of mercuric chloride, 1-2000, is applied, and a sponge wet with the solution is left on while a tourniquet is applied to the arm, halfway between the elbow and shoulder sufficiently tight that the pulse at the wrist can just be palpated. This in most instances brings a venous anastomosis into prominence, and the vein being selected, a sterile needle is quickly thrust in, letting the blood flow into a sterile test tube. No anesthetic is necessary. (A Strauss needle is a good one.) When 10-20 cc. of blood have been collected the tourniquet is loosened, the needle is withdrawn, and a piece of sterile gauze sponge placed over the point of puncture and held in place by a bandage. The test tube is immediately corked with a sterile cotton pluglet, and stood at such an angle that a long clot will form, which aids in the separation of the serum. The blood is immediately placed in an icebox and kept there until it is sent to the laboratory. The serum should always be taken within twenty-four hours of the time it is to be examined, otherwise a natural hemolysis takes place that interferes with the test. The specimen should also not be taken after a full meal or when the patient has been subjected to cold severe enough to chill.

The series studied comprises 200 cases. Of these 200 cases, 33 were admitted from Lynn, 24 from Lawrence, 18 from Salem, 11 from Gloucester, 9 from Haverhill, 14 from Malden, 12 from Everett, 12 from Boston, 5 from Amesbury, 5 from Melrose, 4 from Beverly, and the remaining 53 cases were scattered among 21 cities and towns of this district.

The district from which the Danvers State Hospital derives its patients is shaped somewhat like an equilateral triangle, with its base towards the north, and its apex represented by the city of Boston. It is bounded on the east by the Atlantic Ocean from Boston to Salisbury; on the north by the New Hampshire State Line; on the west its boundary can be roughly outlined by a line drawn from Boston through Lowell to the New Hampshire line. Of these 200 consecutive cases, 49 showed a positive Wassermann reaction of the blood serum, *i.e.* 24½%, or 24.5 of the cases admitted from this district to the Danvers State Hospital, had syphilis. One hundred and forty-six cases were from cities; of these, 36 gave a positive reaction, a percentage of 24+. Fifty-four cases were from towns; of these 54 cases, 13 were positive, a percentage of 24+. Of these 200 cases, 118 were males, and of these 30 were positive, a percentage of 25+. Eighty-two cases were females, and of these 19 were positive, a percentage of 23+. The seacoast cities gave a percentage of .32; the inland towns gave a percentage of .17; the mill cities gave a percentage of .28; and other cities a percentage of .19.

Of the 33 cases from Lynn, 10 were positive, a percentage of .30; of the 24 cases from Lawrence, 7 were positive, a percentage of .29; of the 18 cases from Salem, 6 were positive, a percentage of .33; of the 11 cases from Gloucester, 6 were positive, a percentage of .54; of the nine cases from Haverhill, only 1 was positive, a percentage of .11; of the 14 cases from Malden, only 1 was positive, a percentage of .07; of the 12 cases from Boston, only 1 was positive, a percentage of .08; of the 4 cases from Beverly, 2 were positive. Four negative cases were received from Woburn; from Everett 12 cases were received, 2 were positive, a percentage of .16; Swampscott sent 2 cases, of which 1 was positive, and 1 negative; Peabody, 3 cases, of which 2 were positive and 1 negative; from Ipswich, 3 negative cases were received; from Melrose 5 cases were received, of which 1 was positive and 4 negative; from Amesbury, 5 cases, of which 1 was positive and 4 negative; Stoneham sent 4 cases, of which 1 was positive and 3 negative; Chelsea sent 2 negative cases and Lowell 3 negative cases; from Revere 6 cases were received, of which 2 were positive and 4 negative; 3 cases were received from Winthrop, all of which were negative; Newburyport sent 2 cases, of which 1 was positive and 1 negative; Danvers sent 2 cases, 1 of which was positive and 1 negative; Andover sent 3 cases, all of which were negative; Methuen sent 2 cases, 1 of which was positive and 1 negative. The following towns, Saugus, Wakefield and Georgetown, sent 2 cases each, all of which were negative; the following towns sent 1 case each, all of which were negative: Norwood, North Reading, Winchester, Rockport, Marblehead, Somerville, Medford. Middleton sent 1 case that was positive.

One of the interesting things was the contrast between mill cities, such as Lynn and Lawrence, in comparison with Haverhill; the percentage of the two former being 30% and 29%, while Haverhill only showed a percentage of .11.

An interesting fact noted was the small num-

ber of cases in which a history of syphilis was obtained; of the 19 female cases that gave a positive Wassermann reaction, in only 2 could a history of syphilis be established. Of the 30 male cases, only 4 cases showed a history of syphilis.

A few words regarding the significance of the Wassermann reaction may not be amiss. According to Plaut, the primary stage of syphilis shows positive Wassermann reaction of the blood serum in 60-80% of all cases. One hundred per cent. of the patients suffering from syphilis in the secondary stage will show a positive Wassermann reaction of the blood serum. Ninety-eight per cent. of the patients suffering from the tertiary stage of syphilis will show a positive Wassermann reaction. Syphilitic and parasyphilitic affections of the nervous system usually show a positive Wassermann reaction of the blood serum. In this group belong general paralysis and cerebro-spinal syphilis. In general paralysis in addition to the positive reaction of the blood serum, we usually obtain a positive reaction of the cerebro-spinal fluid. Also the cell-count, Nonne and Noguchi tests confirm the presence of syphilis. Cerebro-spinal syphilis, on the other hand, does not show a positive reaction of the cerebro-spinal fluid. Into this last group of syphilitic and parasyphilitic affections of the nervous system fall nearly all of our cases that show a positive Wassermann reaction, and since it is a well-known fact that only a small and indeterminable percentage of cases of syphilis develop these parasyphilitic affections of the nervous system, it necessarily follows that the percentage obtained from the insane committed from these respective towns is very low in comparison with the actual amount of syphilis present.

THE ETIOLOGY OF HAY FEVER.*

BY ALGERNON COOLIDGE, M.D., BOSTON.

Hay fever and kindred disturbances have always been mysterious and illusive diseases. It is obvious that they form a group, having much in common and yet each being distinct from the others. Thence we have such terms as vasomotor rhinitis, hyperasthetic rhinitis, and paroxysmal sneezing to describe the group, and hay fever, rose cold, autumnal catarrh and horse asthma to describe different members of the group. These latter names are based upon the supposed etiology rather than upon the pathology of the afflictions, because the character of the symptoms suggests a functional disturbance or idiosyncrasy rather than a pathological lesion. Certain persons periodically or in a particular environment suffer from a set of symptoms commonly known as coryza; nasal irritation, sneezing, engorgement of the turbinates with watery nasal discharges. Often neighboring mucous membranes of the eyes and the throat are involved, and of the bronchial tract with more or less asthma. In some of these cases the exciting cause is definitely traced, as in typical hay fever caused by the pollen of grasses or of rag-weed; in others it has not been isolated, as in that due to the emanations from certain animals. In still other cases no positive irritant can be proved, but the symptoms are so similar that a similar cause must be assumed.

It is evident that a person has hay fever because of an idiosyncrasy making him intolerant to one or more substances, which, although they are innocuous to others, are irritants to him. This was for many years, and is still often explained by supposing that the primary cause lies in the nervous system; that a patient suffers from hyperesthesia or increased reflexes or other instability of function of the local nerves or of his nervous system, and that the exciting pollen acts mechanically upon these sensitive nerves. Other etiological factors have been suggested in deviations of the septum, intranasal contacts and uric acid in the blood. All of these theories of etiology are open to criticism. It is easy to accuse almost any patient of some mild form of nervousness, especially if we assume that the presence of hay fever proves a nervous disposition. But it is certain that a very large number of truly nervous patients have not the least trace of hay fever, therefore it is not a common symptom of irritable nerves. The same is equally true in regard to malformations of the nasal cavities. But a still better argument, that the condition of the nerves or the shape of the nose have nothing to do with causing it lies in the fact that a person susceptible to one form of hay fever may be entirely immune to another. One may be violently affected in June and perfectly well in August, whereas another may be just the reverse. It is hard to imagine that unstable nerves or abnormal nasal cavities could make such fine distinctions between different irritating substances. It is also evident that extremely small quantities of the irritating substance are sufficient to bring on the symptoms. All this suggests that the primary cause of hay fever must be sought for in what may be loosely called a biochemical reaction. The first serious evidence for this theory was offered by Dunbar, who separated a proteid from the pollen of the grass family, which placed on the nasal mucous membrane of different persons acts as an irritant in all victims of the European form of hay fever, irrespective of seasons, while all others are unaffected by it. By introducing this proteid into horses he produced an antitoxin which protects the mucous membrane from the irritant action of the grass pollen. This suggested that the cause of hay fever is a lack of immunity on the part of the patient, which immunity is possessed by normal individuals. More recently others have announced that hay fever is caused by a mysterious phenomenon called anaphylaxis.

* Read before the New England Otological and Laryngological Society, November 26, 1912.

The proteid contained in the pollen of grasses is responsible for the European hay fever, that in the pollen of rag weed for our autumnal catarrh. The common form of so-called vaso-motor rhinitis, which is induced by the emanations from certain animals, particularly the horse, is evidently of a similar nature, and in this connection it appears to be established that persons liable to this disease are also especially liable to a disturbance of the nature of an anaphylactic shock after the injection of diphtheria antitoxin or other preparation of horse serum. We see also other varieties of vaso-motor rhinitis in which it is not possible to trace the source of irritation, but which lead us to suspect a similar cause. It is possible that in certain forms of chronic infection, especially of the nasal accessory sinuses, a micro-organism is present which produces a toxic proteid capable of acting on the mucous membranes of the nose and bronchi in a manner similar to the toxic proteids contained in pollen or animal emanations. In such a case the patient would be harboring his own irritant and the absence of an external exciting cause would be explained.

There are several questions connected with these cases which need better answers than they have hitherto received. What is the relation between the nasal symptoms and the asthma which so often accompanies it. Is the asthma due to a nervous reflex from the nose or is it the result of the direct action of the irritant on the bronchi; or is it caused by the absorption of some substance acting through the general circulation? Nasal irritation appears sometimes to excite asthmatic symptoms, but it generally does not do so. Concerning what is sometimes called nasal asthma or asthma of nasal origin, I doubt whether such a thing exists, except in connection with vaso-motor rhinitis. In answering the question whether in a certain case of asthma the nose is at fault, a history or symptoms of vaso-motor rhinitis is to be sought and not anatomical peculiarities in the nose.

May not the presence of bilateral polypi in cases of asthma be looked upon as *prima facie* evidence of vaso-motor rhinitis? Chronic vaso-motor rhinitis, asthma and bilateral polypoid formation of the mucous membrane of the ethmoid occur frequently together. In this symptom-complex the relative intensity of the nasal irritability, the asthma, and the polypi varies in different cases, but they are found so frequently together that one cause must be sought for to explain the combination.

An explanation is also needed for the sensitive spots in the nose, the mechanical irritation of which in a person suffering from hay fever brings on increased reflex symptoms, and cauterization of which is often recommended for treatment.

For the laryngologist the question of the etiology of these disturbances is especially interesting if it can suggest a successful and logical method of treatment. A curious fact in vaso-motor rhinitis is that many cases are relieved of their symptoms by methods of treatment which would seem to be entirely illogical, whatever our theory of the etiology may be, whereas in other cases the same treatment produces no effect. Septal and turbinate operations, cauterizing with chemicals or heat, inhalations and internal drugs appear to produce undoubted good results in some cases and to fail in others. This may be partially explained by supposing that any stimulation of the intranasal structures may in certain cases alter the conditions which make the symptoms possible. Recently different preparations from the exciting pollens have been introduced with the object of rousing a tolerance, but these also do not seem to be final. If all the symptoms connected with hay fever are primarily caused by an intricate biochemical reaction we may hope that logical and effective means will be found to neutralize this reaction. And the possibility is also suggested that the treatment of asthma and nasal polypi may follow in the same direction.

THE ETIOLOGY OF HAY FEVER.*

BY THEOBALD SMITH, M.D., BOSTON.

THE disease known as hay fever is due to pollen grains. That was definitely decided many years ago by English physicians, and it was without knowledge of their work that Dunbar took up the subject anew in 1902. He himself was a victim of hay fever and his assistant, Prausnitz, who did much work with him, and has recently written several papers on the subject, was also a victim of this peculiar disease.

Dunbar first took up the etiology. He was soon led to suspect pollen, and he made a number of experiments which indicated that pollen from the grasses produces the June fever, and it also can be made to produce the same peculiar symptoms when pollen grains are blown into the eyes of susceptible individuals. These observers have used the eye almost wholly as the organ of reaction to determine the effect of the toxins and the antitoxins which they produce. Dunbar soon came to the conclusion that it was necessary to find what precise constituent of the pollen grains was the irritating one. He found that the smooth pollen grains were more concerned in producing the reaction than the fine spiny ones, thus eliminating mechanical activity as a cause. He had pollen grains analyzed, after collecting large quantities of them, especially from the grasses; these were dried and ground up and extracted in various ways. He took out the fats with alcohol and ether and then made a salt solution of the proteids remaining. He also tested the carbohydrates in the pollen grains, which he thought at first might be the active

* Substance of a Discussion on Hay Fever before the New England Otological and Laryngological Society, November 26, 1912.

agent. But on testing the purified carbohydrate he found it negative. In the salt solution extract he found albumin, pseudoglobulin and euglobulin. He purified this substance, but found it best to use the salt solution of the combined proteids. When this was instilled into the eye of a sensitive person he obtained very soon after, the characteristic reactions, which consisted of reddening of the conjunctiva, etc. By using the toxin he was able to make a distinction between the false and true hay fever cases, *i.e.* when the minimum reaction dose was instilled into the eyes of those who had other affections, but did not have hay fever, he found that no reaction took place; he could thus eliminate psychic influences.

He next started to make an antitoxin by using horses for this purpose. He injected them repeatedly with the salt solution extracts. After several months the serum of the horses was tested. He found that in his own eye and that of his assistant he could get the reaction. He first obtained the minimum reaction dose of the toxin by using his own eyes and those of his assistant. He then added the immune horse serum to the toxin and by trying different mixtures of toxin and antitoxin he found the final strength of his antitoxins. For instance, if a given quantity of antitoxin in a 1-30 dilution kept the attack from coming on, when mixed with the minimum dose of toxin which still produced a reaction, he considered it had a strength of 30. In this way he standardized his serum.

Some of these experiments indicated that the systemic attacks are due to the direct inhalation of the pollen powder. In one case, the assistant, who was very sensitive to the toxin, drew into his air tubes a certain amount of the powder and soon afterwards had a severe attack of coughing with dyspnea.

In 1905, after the thousand (more exactly, 997) cases had been treated, one of his assistants collated the data on hand contained in these cases, and it was found that about 60% came out very well under the treatment with the antitoxin; 24% were partially benefited; 16% not at all. The results from these thousand cases were thus very reassuring.

Dunbar maintains the doctrine or hypothesis, that he has to do with a soluble toxin. Such substances, when injected into an animal body, produce an antitoxin. By mixing the toxin and antitoxin, he showed that the toxic effect was eliminated, which indicated that he had to do with a true toxin which could be neutralized by an antitoxin.

Now, in recent years, since the development of our knowledge of anaphylaxis, many observers have considered hay fever an anaphylactic reaction. Let us look for a moment at this reaction and see how it resembles and differs from toxic action. We know that we can rapidly accustom animals to increasing doses of true toxin. Horses can be so immunized as to stand many thousand times the initial fatal dose of tetanus toxin. The same is true of diphtheria and other toxins. When an animal receives a very minute dose of some animal or vegetable proteid and some weeks later a large dose of the same, harmless to a fresh control animal, it exhibits a group of symptoms which come on very quickly and may lead to death. Thus the guinea-pig which received an excessively minute dose of horse serum two weeks previously, will die if 5 cc. of the same serum is injected subcutaneously, or much less into the peritoneal cavity, or as little as 0.1 c.c. intravenously. It cannot be immunized to this horse serum. It may become temporarily refractory after recovery from the anaphylactic shock, but it becomes susceptible again. There seems to be, therefore, a fundamental difference between toxin immunity and protein susceptibility or anaphylaxis. Both are immune reactions, but the latter is dangerous to the subject.

The current explanation of the anaphylactic shock is as follows: The original injection of proteid leads to the formation of an immune body (anaphylactic-reaction body) which, with the aid of the normal complement of the blood tends, on a second injection of the same proteid, to disintegrate it,—digest it, in other words,—for subsequent reassimilation. One or the other of the component parts into which the proteid is disintegrated may be toxic to the organism and produce the train of symptoms called anaphylactic shock.

The difference between a toxic and an anaphylactic or allergic action (as von Pirquet has called it) is then fundamental. The toxin and antitoxin combine to form an inert substance. The proteid (antigen) is acted upon by an immune body (anaphylactic reaction body) plus complement, and is disintegrated into fragments, one or more of which may be toxic and act as toxins before further disintegration has made them harmless.

In the guinea-pig receiving horse serum a second time in adequate dose, some toxic substance is set free, which acts upon the plain muscle fibre of the body. In the lungs it causes spasm of the muscular coat of the bronchi so that air cannot pass out or in, and the guinea-pig dies of asphyxiation. The lungs are found greatly inflated and this inflation in the guinea-pig is taken as a reliable indication of true anaphylaxis.

The sudden onset of the symptoms of hay fever after instilling the pollen extract or inhaling pollen powder has led the majority of writers recently to interpret the paroxysms as an anaphylactic reaction. Especially the asthmatic symptoms are suggestive. We are far from being in a position to settle this question at present. I can only give a few of the arguments which have been presented.

In the first place, Dunbar's claim to have produced an antitoxic serum which seems well sub-

stantiated, militates against the view that anaphylaxis is dominant in hay fever. On the other hand, the rapidity of onset and the apparent incapacity of the affected person to become immunized, speaks for anaphylaxis. The reaction in the conjuctiva may be called out almost every hour and the attacks last six or seven weeks, or until the pollen disappears from the air. But we know of toxins now which act within one or two hours after injection and we know that immunity to bacterial action may not be durable enough to last from one year to another.

Another line of argument favoring a toxic action in hay fever is the absence of a refractory state in the individual. The individual (man or animal) treated with a proteid in large doses, becomes insusceptible or refractory for a time. It seems as if the immune body (anaphylactic body) had been used up for the time being. In hay fever, no refractory state has been observed either in the spontaneous or experimental cases. The individual remains sensitive throughout the season, and from hour to hour. Experimentally, Dunbar has been unable to produce passive anaphylaxis by transferring serum of the treated horses to guinea-pigs and injecting the protein. In true hypersensitiveness or anaphylaxis, a shock would result under this condition.

Now, there is another way of attacking the problem, by attempting to actively immunize patients who are subject to hay fever. The serum, of course, only passively immunizes them, protects them only for a certain length of time, but if we can inject the pollen toxin subcutaneously and produce such a condition as is produced in the horse for the production of the horse pollantin, then, if immunity occurs, we are justified in saying that we have not an antiphylactic phenomenon to deal with, but a pure and simple sensitiveness to toxins. This method of active immunization or vaccination has been tried in England and in Germany. Only recently an article appeared by M. Neisser on this subject. The pollen toxin is prepared and put into the eye in from 5 to 5,000 reacting doses, the unit being that dose which produces marked hyperemia of the conjunctiva in sensitive persons. By injecting increasing quantities of the toxin subcutaneously into these 14 or 15 cases, they have obtained certain results. Fully one-half of the cases were very much benefited, some slightly, and some not at all. They were, however, careful to make inquiries of a number of other patients that had not been treated and they found that the season, during which the experiments were made, was such that fully one-half had a much easier time than the year before. These results are not entirely free from criticism, for the good results might perhaps have been obtained without the treatment. But Neisser and his co-worker think that they began the treatment a little too late in the season. The patient should be immunized before he is exposed to the pollen grains in the spring of the year, if it is a June affair. Another time they mean to try immunizing much earlier and see if they cannot get a larger percentage of successful results. These cases are not to be considered actual cures because all of the patients had hay fever, but the paroxysms were much milder and the patients were more comfortable.

From what has been said you will see that it is not quite possible to explain definitely hay fever as an effect of pure toxins on the one hand, or of hypersensitiveness on the other. The latter explanation is the simpler and is currently accepted. We do not, however, know enough of anaphylaxis itself. There are many phenomena at present thrown together as anaphylaxis, which need further analysis. It is also probable that in this disease the two phenomena are so associated that now one, now the other predominates. Pollen protein may contain both hypersensitizing and toxic substances not yet separated from one another.

Clinical Department.

A CASE OF GASTRO-MESENTERIC ILEUS.*

BY C. A. PORTER, M.D., BOSTON,

AND

C. W. MORSE, M.D., BOSTON.

THE reason for reporting this case is twofold. First, on account of the difficulty of diagnosis, and second, on account of the unique maldevelopment of the intestinal attachments, which were so striking that it should be added to the literature of the subject.

The case to be cited is that of a boy three years old who was sent to the Massachusetts General Hospital on October 18, 1912. From the mother the following history was obtained.

The child's parents and four other children were living and well, the oldest child being 17 years of age and the youngest a baby of 14 months. When 6 months old the patient had varicella, but otherwise none of the exanthemata. His development had not been unusual and he was apparently a *bright* child, but never seemed to be quite as strong as the other children as he had always complained of having "stomach-aches." One year previous to entrance he had a more severe attack of abdominal pain accompanied by vomiting, which lasted three or four days, and was relieved by enemata and castor oil, but since then, aside from any attack of diarrhea ten months before, the patient had been free from any intestinal symptoms.

The attack for the treatment of which the patient came to the hospital, began five days before. On the morning of the day of the onset the patient had his breakfast and noonday meal as usual, and apparently was perfectly well. In the afternoon he became feverish and complained of abdominal pain, but did not vomit. He passed a very restless and

* Read at a meeting of the New England Pediatric Society, November 14, 1912.

fretful night, and on the second day the pain still persisted and the child looked very ill, but no new signs or symptoms were noted. On the third day he began to vomit, the vomitus consisting of greenish, watery fluid in which no food was noticed. During the following two days, that is, the forty-eight hours before entrance, the child had remained in bed and vomited five or six times. He had been given castor oil and enemata without result until 12 hours before admission, when, as a result of an enema, a small quantity of brown mucus with a foul odor was recovered. This mucus contained no blood or fecal material. The only food he had taken during the five days was one-half cupful of milk, a little farina and a few sips of water, so that with the continuous vomiting, starvation was an important element. Abdominal pain and vomiting stood out as the chief symptoms of the five days' illness, the pain being recognized chiefly by the child holding his hands frequently on his epigastrium and assuming the knee-chest position in an effort to get relief. His general condition had grown very much worse during the last 24 hours before entrance, and marked loss of weight and increasing apathy was noted by the mother. No history of headache or trauma was obtained.

The *physical examination* in the accident-room revealed a little boy with normal development, but with little subcutaneous fat and in a poor state of nutrition. His facies were apathetic and his eyes sunken. He wriggled about on the examining table, usually keeping his thighs flexed on his abdomen, and was apparently comfortable *only* when in the extreme knee-chest position which he continually tried to assume, thus making the examination rather unsatisfactory. Frequent irregular twitchings of his upper lip, as if he were suffering sharp twinges of pain, were also noted. He was conscious and rational but very restless and fussy. His skin was dusky, pale and pasty, but aside from a slight eczema on his thighs, was clear.

Examination of the head showed nothing remarkable in its size or shape. The ears were normal. There was a slight nasal discharge with some excoriations of the external nares. The lips were dry and parched and the tongue, which was protruded straight, had a slight moist white coat. The throat was not remarkable.

The examination of the chest revealed nothing unusual, the heart and lungs being normal. There was no evidence of enlarged thymus.

The abdomen was very markedly retracted, with no areas of abdominal fulness, but marked tenderness throughout prevented deep palpation. This tenderness was not constant, but was apparently coincident with the exacerbations of the abdominal pain. At one time when the abdomen was relaxed, a small tumor, about as large as the tip of one's finger, was felt in the region of the pylorus, but this was not again demonstrated satisfactorily. No visible peristalsis was seen. Percussion revealed nothing remarkable and the liver edge and spleen were not felt. There was no general adenopathy.

The extremities, genitals and reflexes were all normal.

The blood examination showed a hemoglobin of 70% and leucocytosis of 18,000.

The spinal fluid revealed nothing abnormal.

The urine showed a large quantity of acetone, but no diacetic acid and no albumen or sugar.

No stool was obtained.

The vomitus was watery, greenish fluid, with some mucus, but no blood.

His temperature was 98.4, pulse 110, respiration 25.

In view of the fact that the child showed nothing definitely surgical and was in no condition to stand an exploratory laparotomy, both on account of the lowered vitality and on account of the acetonuria, it was deemed advisable to send him to the ward for further study.

At this time various diagnoses were offered, but no one diagnosis seemed to be conclusive. Cyelic vomiting, tuberculous meinigitis, brain tumor, intestinal obstruction from volvulus, intussusception, pylorospasm and acute infection were among the diagnoses considered.

The rather sudden onset and short duration of symptoms, together with the lack of changes of the reflexes made tubercular meningitis or brain tumor seem rather unlikely. Intestinal obstruction from volvulus was ruled out because there was no abdominal distension. Intussusception at this time should have, at least, shown a tumor and possibly bloody stools. An acute infection was rather improbable on account of the normal temperature. Thus pylorospasm or high intestinal obstruction remained, but even this diagnosis was considered doubtful.

The child was admitted to the East Surgical ward and given soda bicarbonate by mouth and by rectum and glucose subcutaneously. On the 19th, that is, the next day, he was no better and was transferred to the Children's Medical Service for the purpose of more careful study. Under their care the acetonuria was further treated with soda-bicarbonate and orange juice, and he was given glucose subcutaneously.

On the next day he vomited twice, and the abdominal tenderness seemed more localized in the epigastrium. He took liquids well by mouth, but vomited almost as much as was taken in. His general condition was not improved.

On the second day he *again* vomited twice and before each vomiting spell the stomach outline became distinctly visible but no peristalsis was seen. He became very restless and his general condition was unimproved. The acetone was still present in large quantities and the diagnosis no more definite than before. On this day the fundi were examined and found normal.

On the 22nd the vomiting still continued with no new signs or symptoms. During the forenoon the child tossed about his crib, often assuming the knee-chest position, in which it seemed to be more comfortable. At this time *visible gastric peristalsis was noted* and *that fact*, coupled with the facts that he had had no movements of the bowels and that the small intestine was empty, made the diagnosis of high obstruction, probably from pylorospasm, seem most likely. Bismuth x-rays were considered, but on account of the vomiting and low vitality they were not deemed advisable.

A definite diagnosis having been made, immediate operation was advised as a desperate measure to save the child, who was now in a very serious condition. The operation was undertaken at once by Dr. C. A. Porter who, after the child was etherized, opened the abdomen in the median line above the umbilicus, and found the unique condition which I will attempt

to describe. Its description is rather difficult in that the element of time entered so largely into the success of the operation that a careful study was impossible.

On opening the peritoneum a distended stomach and duodenum presented, filling a large part of the epigastrium. The pylorus was large and relaxed, but apparently normal, with no evidence of obstruction. The duodenum was distended down to the point where it disappeared beneath the mesenteric vessels. On lifting up the stomach with the great omentum it was surprising to find that the omentum, which was short and thick, had no connection at all with the transverse colon, and could easily be lifted out of the wound with the stomach, *leaving* the transverse colon in position. Further exploration revealed a swollen edematous root of the mesentery high up in its usual position. The small intestine was collapsed and contracted, much the same as those seen in the dog, but its color was very dusky, and the veins of the mesentery tremendously engorged as if by obstruction to the venous return.

The large gut which contained a small amount of gas had none of the usual attachments but hung free, the cecum, hepatic and splenic flexure having a long mesentery like that of the small intestine which allowed the colon to be delivered through the wound with the small bowel.

In order to determine just what condition had to be dealt with, the incision was enlarged and all the intestines held up in a mass outside the abdominal cavity. It was then clear that the whole mass of intestines, both large and small, had made a half turn to the right on the root of the mesentery, thus causing obstruction to the venous return and resulting in edema at the point of torsion where the mesenteric vessels cross the duodenum.

On twisting the entire mass of gut one-half turn to the left, it was immediately and strikingly noticeable that the obstruction was relieved as pressure on the stomach caused a rush of gas from the stomach and duodenum into the small bowel and the color changed from a dusky blue to a more normal appearance.

The intestines were then hastily replaced and the wound closed in the usual manner. No attempt was made to prevent torsion occurring again, as the child's condition would not allow any further operative procedure, and it was thought best to postpone that until his condition was more favorable. The operation took about 25 minutes, and the child stood the necessary trauma of evisceration remarkably well, leaving the operating room in fairly good condition.

Toward night of the same day the patient became very restless and nothing in the way of hypnotics seemed to quiet him as he still continued to assume the knee-chest position and was apparently in considerable pain. He reacted only slightly to stimulation but took water freely with no vomiting, and on the whole acted as if the obstruction were relieved. About 3 a. m. the next morning, however, his condition became much worse, and in spite of increased stimulation his pulse became imperceptible and he died at 4 o'clock.

No autopsy could be obtained so that further study of the anatomical condition could not be made.

A detailed embryological explanation of this arrested fusion of the layers of the peritoneum, with the resulting lack of fixation of the viscera, would at this time be too intricate and take up too much time, so let it suffice to say that the intestinal tract as found in this case had only partially gone through the complex twisting, rotating and fusion of layers, which characterize the development of the complex intestinal area of the higher animals, and is most elaborate in those beings who naturally assume the upright instead of the horizontal position.

During the past few years the study of the causes of enteroptosis has stimulated a new interest in the attachments and supports of the abdominal viscera and their embryological formation. The reporting of this case may suggest a possible link between the arrangement of viscera of those beings which naturally assume an upright position and those whose long axis is horizontal, by the supposition that this case presented an arrested development of the twisting and fusion of the layers of the dorsal and ventral meso-gastrium which are the suspensory ligaments and carry the blood supply of the primitive straight gut.

SYPHILIS AND THE SURGICAL OUT-PATIENT.

BY WM. PEARCE COUES, M.D., BOSTON.

If the conjectures of Iwan Bloch[1] and other syphilographers are true regarding the bringing of syphilis from the New World to the Old by members of Columbus' crew in 1493, we might well pause to consider and balance the total amount of harm done by the introductiou of syphilis to the civilized world, against the benefits to humanity of his great discovery.

Perhaps Columbus himself, could he have looked ahead to 1913, and seen the toll of this disease in misery, death and disaster, would have stayed in Spain.

Recent wonderful advances of all that pertains to the knowledge of syphilis makes the ordinary physician stagger. Perhaps at times the syphilographers and teachers of this subject themselves forget all that has gone before in the enthusiasm of Wassermann's, Noguchi's, luetin reactions, and salvarsan treatment.

Though there is evidence to show that cases treated before the advent of salvarsan were cured and stayed cured, as attested by consecutive negative Wassermann reactions and continued health, Milne[2] believes that only about one case in four was really perfectly cured by the older methods of treatment.

The statement that the surgical out-patient clinic of a large hospital or dispensary is one of the best places in the world to study syphilis would not perhaps be granted by many, but at the same time it is perfectly true. Some of the most obscure and interesting lesions are there, mutely exhibiting themselves and begging for notice, often to no avail. The fact that patients come to the surgical clinic to be treated for some

definite surgical trouble (or supposedly surgical trouble) is often responsible for this. The fact that the supposed surgical lesion for which they present themselves is syphilis, or that an existing syphilis has an extraordinarily important bearing on a real surgical condition, is often lost sight of,—more often never thought of. The soft round, slightly depressed scars of old healed gummata on the body or legs are often overlooked, though to the initiated they spell syphilis as well as a positive Wassermann reaction.

If we seek to ascertain what types of lesions are most often unrecognized, few would contradict the statement that gummata of the bones and soft parts and specific periostitis and osteoperiostitis were among the most frequent. Specific onychia and paronchia, dactylitis and the joint troubles incident to tabes, and tabes itself would come next in the scale in the estimate of many. Increasing experience gives assurance of the relatively enormous numbers of the poorer classes, especially women, who are infected and have not the slightest knowledge of their disease.

A careful history and general inspection of the patient, which will take only three minutes extra, is everything in arriving at a correct interpretation of such obscure cases. Unfortunately this is often neglected in the surgical out-patient department through lack of time and lack of interest. It must be remembered that in getting the history in women patients the question of the number of children dying in infancy is fully as important as that of the number of miscarriages. Thus, a woman who had specific periostitis of the radius had had fourteen children, but further inquiry showed that eleven had died in infancy.

All patients with fractures, young or old, where the break does not unite when it should, must be considered as possible syphilitics until proved otherwise. One of the most often unrecognized forms of specific disease seen in the out-patient departments is specific periostitis. The patient falls, striking the arm perhaps a fairly violent blow. Clinical examination shows no fracture. The case is dismissed as a bruise or a sprain but returns with increased pain and disability. An x-ray is taken which shows a specific periostitis.

Ulcers of the legs, which are in reality specific ulcers, are often thought to be varicose, as pointed out by Fournier,[3] Gaucher[4] and others, simply because of the fact that they are accompanied by extensive varicose veins of the same legs. Gummata of the skin and underlying soft parts are time and again mistaken for sluggish wounds that are delayed in healing because the patient is "run down."

Case 1. An old woman was operated upon for an epidermoid cancer of the face. This was dissected out without contact and without going through the cheek. All went well for a few days and a perfect linear scar was seemingly going to be the result. On removing the stitches the wound separated and in three days a round soft ulcer, the size of a nickel, was the result of the excision. A careful examination, on account of the patient's complaining of her leg, showed a specific ulcer here; it was found that the patient had been treated for syphilis in the skin department. A complete physical examination, though it could not have changed the necessity for the treatment, would have thrown light on the case earlier. Prompt healing of the ulcer by mercurial ointment dressing, and there was no more scar than if the wound had healed by first intention. The patient was referred to the Dermatological Department for specific treatment.

Gummata are often mistaken for malignant disease, as the following will testify:—

Case 2. A young man was seen in the men's surgical department. He gave the history of an increasing swelling of the left side of the neck for the last few months, with debility from it. Absolutely no history of syphilis was obtained and careful examination showed no signs of any trouble besides that for which he came. Examination showed a large mass, dome shaped, extending above the left clavicle, as large as a cocoanut, the base fixed and immovable, the apex soft and reddened. The surgeon who asked me to see the man incised the mass and reported probable sarcoma. I had made a provisional diagnosis of gumma. The case was sent to the Huntington Hospital. Sections of the growth which were examined at the hospital showed syphilis and nothing more; gumma of the glands of the neck. Positive Wassermann reaction was, I think, obtained, but at any rate the man was much improved by treatment when unfortunately lost sight of in the Dermatological Department.

Case 3. A small boy was seen with a circular, bluish lesion on the right cheek, the size of a quarter, which he had had for eight months, and the history was given that it followed the bite of a dog. There was no history of specific disease, and not the slightest evidence of it on examination was found. A specimen was excised but was unfortunately lost. The boy was given careful treatment for weeks with no result. Unguentum hydrarg was used, with great improvement. The child was sent to the Dermatological Department with the opinion that the lesion was probably specific. A report was sent back that there was no syphilis. Patient was sent back again for a Wassermann despite this. Both Wassermann and Noguchi reactions were positive. The lesion was nearly well in a few weeks of vigorous specific treatment.

Case 4. A middle-aged woman was seen with a circular lesion of the cheek, a deep punched out ulcer, which had been diagnosed as a simple ulceration and treated with Sharlach R. salve. There was a history of having been stung by a bee on the cheek. No specific history was obtained; nothing else definite on examination. Diagnosis of gumma of the cheek was made and confirmed in the Dermatological Department. After a few weeks of treatment by mercurial ointment and internal specific treatment, the ulcer was well. One year afterwards the patient presented herself with a gumma of the nose, which had been unrecognized in another de-

partment. The ulcer of the cheek had left only a fine linear scar, hardly discernible.

Case 5. A middle-aged woman presented herself on my service with a slightly reddened superficial ulceration over the external condyle of the left humerus. A diagnosis of suppurating bursa had been made; treatment was unsatisfactory. Bare bone was felt by probe. An x-ray showed specific osteoperiostitis of the humerus. Prompt symptomatic cure, and in a few weeks the ulcer was completely healed. No definite specific history was found in this case.

Case 6. A middle-aged married woman was seen at the surgical clinic of the Boston Dispensary in November, 1912. The husband died of tuberculosis. There were no children and there had been no miscarriages. In August, 1912, she fell fifteen steps in an attic, striking on the right foot. She was treated by bandaging by a doctor for three weeks; has been lame ever since; constant disability and pain in the ankle. She had been to various hospitals for treatment and x-rays had been taken. She was told that nothing more could be done for her; the ankle has remained absolutely stiff. Examination showed a well-developed and nourished woman with no scars on palate, or outward evidence of specific trouble. The right ankle is greatly thickened, symmetrically tender to pressure; ankle absolutely rigid and no active or passive motion possible. An x-ray showed an old fracture of an internal malleolus and a mass of bone surrounding the tibia and fibula. The fibula is rough and enlarged nearly to the head. Wassermann reaction was negative. Large doses of iodide of potassium were given. In three weeks there was considerable motion in the ankle. The patient was free from pain most of the time, which had been very severe for a year. There was continued improvement when last heard from and considerable motion in the ankle.

Case 7. A young married woman was seen at the clinic in November, 1912. She gave a history of trouble with the elbow for two months. *There were four living children* and *no miscarriages*. Two of the children at least presented no external easily recognized stigmata of syphilis. Examination of the patient showed a well-developed and nourished woman. There was a reddened swelling, the size of a walnut, over the external condyle, fluctuant; there were only a few degrees of flexion of the elbow possible. Examination of the lungs showed the second stage of tuberculosis. No tubercle bacilli in the sputum (two examinations). Process about apex and slightly lower. Patient is four months pregnant. An x-ray of the elbow showed the elbow joint and the humerus, radius and ulna normal. Diagnosis of abscess, probably tuberculous, made. Incised in centre of fluctuating reddened area. There was no pus, but a sticky, honey-like fluid, slightly red, was evacuated. Syphilis was suspected from the character of the fluid. Wassermann reaction was positive. The incision took on rapidly the characteristics of a gumma, which healed quickly under specific treatment. An x-ray of the elbow later showed a thickened periosteum. Perfect symptomatic cure of the lesion by specific treatment. It would seem in this case that possible syphilis of the lungs should be considered as a diagnosis of the pulmonary condition.

CONCLUSIONS.

Without exaggeration and a duly conservative estimate that all doubtful cases are not syphilis because certain symptoms make it suspicious that they might be, it is a fact beyond refutation that there is an enormous amount of unrecognized syphilis in the surgical out-patient department of hospitals and dispensaries in every large city. The prompt recognition of these cases for their own benefit and that of their community is of great importance. They should at once be referred to and treated by those in charge of the department for syphilis in the various institutions. Every such out-patient department should have facilities for treating *all* the manifestations of syphilis, surgical or otherwise, within its own walls. In the surgical department three minutes extra time spent with each patient will show the presence or absence of keratitis, gummatous scars, gross periostitis of the long bones, abnormal teeth, old perforations of the palate, or lesions of more active syphilis, and will repay the surgeon many fold for his trouble.

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[1] Bloch, Iwan: A System of Syphilis. Darcy Power and J. Keogh Murphy, vol. i, p. 22.
[2] Milne: Am. Jour. Med. Sciences, vol. clxv, No. 2, p. 204.
[3] Fournier: Le Chancre et les Syphilides Cutanées et Muqueuses.
[4] Gaucher: E' Le Chancre et les Syphilides Cutanées et Muqueuses.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, January 8, 1913, at 8.30 P. M.

The President, Dr. L. Jay Hammond, in the chair.

SYMPOSIUM ON THE GASTROINTESTINAL TRACT.

"Anatomy of the Stomach and Intestines," by Dr. Addinell Hewson.

"The Gastrointestinal Tract," by Dr. Vincent Lyon.

The subject is approached almost entirely from the standpoint of laboratory diagnosis, with a very brief résumé of the physiology and essential anatomy of the tract, disregarding the symptomatology and pathology in all save a few places. The following subdivisions are fully considered: The Physiology of Digestion, Movements of the Stomach, Pancreatic Secretions, Diseases of the Mouth as Affecting Digestion, Breath, Lips and Mucous Membranes, The Tongue, Disturbances of Sensation, Diseases of the Salivary Glands, Disease of Esophagus. A list of analytical gastric tests is given for a complete chemical analysis. Further subdivisions discussed are: Chemical Examination of Stomach Contents, Starch Digestion in the Stomach, Determination of Blood in Gastric Contents. In the consideration of gastric diseases the following classification is made:—

1. The Gastric Neuroses.
2. The Secretory Derangements.
3. The Motor Derangements.
4. The Commoner Organic Diseases.

The Condition of the Gastrointestinal Tract in Diseases of the Gall Bladder and Biliary Passages is another subdivision of the question discussed. The diseases of the pancreas are studied and tests given to determine pancreatic efficiency. The paper closes with a discussion of Appendiceal Disease as Related to Gastric Disease.

Dr. I. N. Broomell: A large percentage of the diseased conditions in the mouth of local origin can be attributed either directly or indirectly to dental caries. Statistics show that caries is about as prevalent today as at any previously recorded time. While absolutely clean teeth will not decay, it is equally a fact that all teeth that are not clean do not decay. There appear to be conditions of predisposition and of immunity which are operative in the matter of decay, so that caries is about as prevalent in teeth particularly cared for as in those neglected. Notwithstanding this an aseptic mouth should be insisted upon by the dental practitioner. I would strongly urge that in searching for the cause of an obscure pathologic condition the oral cavity be examined. In my opinion the only reliable mouth wash is the human saliva.

THE SMALL INTESTINE.

Dr. Frances C. VanGasken: The thing that stands out most prominently is the laboratory examination of the stools. This should be preceded by a test meal of either carmine or charcoal. In examining for the action of the pancreatic juice and of the bile the indican test is used. Next in value is the test for blood in the stools. After making the many tests the symptoms must be considered in making the diagnosis.

THE BILIARY REGION MEDICALLY CONSIDERED.

Dr. Joseph Sailer: The most significant sign of biliary disease is jaundice. A differential diagnosis must be made from lesions of the pleura, of the intercostal nerves and from endocarditis. Failure to demonstrate a lesion either by medical examination, clinical examination, by operative procedure or by autopsy is hardly sufficient reason for considering that a lesion in the liver does not exist.

THE BILIARY REGION: SURGICAL FEATURES.

Dr. George G. Ross: Practically all the diseases of the biliary apparatus, excepting malignant diseases, have their origin in infection, which infection arises most frequently in the intestinal canal. The most common route by which the organisms reach the gall bladder and ducts is by way of the papilla, a retroinfection. They can also enter the gall bladder by the blood current, the lymphatic stream and by continuity of tissue. I believe that chronic dyspepsia has for its cause some organic lesion. Symptoms due to disturbed function of the stomach and intestines are frequently associated with the chronic type of gall bladder and pancreatic disease, and that is especially true of gall stones. I am heartily in accord with the modern teaching that gall stones do not remain latent in a gall bladder. The chronic symptoms of the stomach and bowels arising from disease in the biliary apparatus are frequently due not so much to the gall bladder and duct diseases as they are to the associated or resulting adhesions about these organs by means of which they are abnormally attached to these geographically associated organs. The higher in the gastrointestinal tract these adhesions occur, the more marked will be the symptoms.

The treatment, surgically speaking, for the troubles of the biliary apparatus is operation. With the exception of the very acute variety of cholecystitis, operation should be performed much earlier than we have been in the habit of doing. Gall stones cannot be dissolved by waiting, and are only exceptionally passed, and then at the expense of great suffering. Adhesions become more numerous with each succeeding attack and only grow in density with the passage of time. The ordinary history we get in this type of case covers a period of rarely less than ten years, and often as long a period as 35 or 40 years has supervened between the onset of symptoms and operation. If the patients are financially able and sufficiently urged by their timid physicians or friends, they make the pilgrimage to the gall stone dissolving fountains of the great Bohemian mecca, only to return belching up the gas of a protesting gall bladder which still remains for some enterprising surgeon to place in his collection as silent witness of the futility and danger of delay.

THE LARGE INTESTINE.

Dr. B. F. Stahl: Diarrhea and constipation give us a basis for the consideration of all the diseases of the large bowel. Diarrhea is a symptom of comparatively few diseases of the large intestine, while constipation is a factor in practically all the remaining diseases of the large bowel. Diarrhea presents definite and extensive pathological lesions. Constipation offers so few that even in a disease so well defined as mucous colitis the lesions are so varied as to make impossible a strict grouping of these cases. The most important aid to regularity of the bowels is the habit of having a fixed hour for defecation. There is danger of inducing atony of the bowels by an abruptly begun regimen composed of great bulk of water and vegetables. Exceptional results are often obtained by the use of salicylate of eserin in 1-40 grain doses, particularly in the distressing cases of excessive tympany. Intestinal obstruction of varying degrees by reason of its weight may induce dilatation of every degree up to the size of the specimen shown in a case reported by Dr. Formad. The circumference of the largest part of the colon measured 30 inches and the contents weighed 47 pounds. The frequency with which cancer of the colon is overlooked is evidenced by Cabot's study of 3000 autopsies. In 43 cases 25% were unrecognized. Intestinal diverticulitis may result from constipation and atony of the wall of the bowel. It sometimes occurs in the cecum and may complicate the diagnosis of appendicitis. The most frequent site, however, is the sigmoid. The symptoms often suggest appendicitis. That the disease is more prevalent than the reported cases would indicate is evidenced by the recent recognition of the cases on record. A more painstaking method should be exercised of examining all conditions even remotely indicating disease of the abdominal viscera.

THE APPENDICULAR REGION.

DR. THOMAS R. NEILSON: The location of the appendix influences the morbidity. The meso-appendix varies in length, breadth and manner of attachment. If short, it is prone to produce kinks interfering with circulation and causes grave consequences when acute inflammation occurs, and it no doubt often is a large factor in the development of some cases of chronic appendicitis. Disease of the appendix presents gastric symptomatology:—

(*a*) Symptomatology simulating ulcer.
(*b*) Symptomatology of chronic gastritis.
(*c*) Gastric symptomatology of nervous type.

The lesion of the appendix in such cases is chronic. Its establishment, while not easy, can in the majority of cases be made by the location of persistent and recurrent discomfort or tenderness, by the noting of evidence of toxemia and by blood examination. The laboratory examination of the blood gives a definite index of the degree of infection and of resistance. Of even more importance is the differential count, more especially that of the polymorphonuclears. In all cases the laboratory blood findings must be looked upon as only illuminating the clinical symptoms. Experience in the observation of these is a most important factor in determining the course to pursue and in reading correctly the values of the laboratory findings.

DR. J. COLES BRICK discussed

THE LABORATORY EXAMINATION OF DISEASES PROPERLY REFERABLE TO THE RECTUM PER SE.

NEW ENGLAND PEDIATRIC SOCIETY.

THE Twenty-third Meeting was held at the Boston Medical Library on December 14, 1912. The following officers were elected for the ensuing year:—

President, DR. JAMES S. STONE, Boston.
Vice-President, DR. FREDERICK P. WEBSTER, Portland, Maine.
Secretary and Treasurer, DR. F. B. TALBOT, Boston.
Member of Council, DR. J. M. JACKSON, Boston.

DR. FRITZ B. TALBOT and DR. WARREN R. SISSON read a paper entitled,

SOME FACTORS WHICH INFLUENCE THE EXCRETION OF FORMALIN IN THE URINE OF CHILDREN AND INFANTS TAKING HEXAMETHYLENAMIN (UROTROPIN).*

DISCUSSION.

DR. HUGH CABOT said that more work must be done on this subject. Most of Dr. Cabot's observations were single. They accepted a negative observation as such. His own work on the raising of the dose should be reviewed. The same individual manages the drug differently at different times. It may be that there is a distinct difference in the way renal epithelium uses the drug in infancy.

DR. F. P. DENNY: Do the acid drugs add to the efficiency of urotropin?

DR. W. R. SISSON: In our cases apparently.

DR. J. L. MORSE said that he had seen two types of pyelitis, one very mild, which recovered under any form of treatment, or even without treatment, and the other, which was very resistant to treatment. He had found alkalies more useful on the whole than urotropin in the treatment of these cases.

DR. C. L. SCUDDER: Does it cause any signs of irritation?

DR. W. R. SISSON: In the case of one child in which the fluid intake was unknown, there was blood in the urine with a dose of 40 grains a day.

DR. C. A. PORTER AND DR. G. W. MORSE read a paper entitled,

A CASE OF GASTRO-MESENTERIC ILEUS.*

DISCUSSION.

DR. C. L. SCUDDER said that the case was unique and opens up the subject of the torsion of various viscera which may be due to long attachments. He has seen one case of torsion of entire abdominal viscera.

DR. CHARLES G. MIXTER said he thought the most interesting part was the diagnosis of high obstruction.

MAYNARD LADD, M.D., read a paper on

SOME OBSERVATIONS ON GASTRIC MOTILITY IN INFANTS AS SHOWN BY THE ROENTGEN RAY.

SUMMARY.

A study of the infant's stomach by means of the Roentgen rays after meals consisting of the regular feedings and from 150 to 200 grams of bismuth showed the following conditions:—

1. In normal digestion bismuth appears in the small intestines as soon as the feeding is completed.

2. The stomach appears to get rid of the greater amount of its contents in from 1½ to 2½ hours, after which there remains a residue which is expelled at a very slow rate in most cases, whether the infant is breast or bottle fed. The complete emptying time of the stomach varied from 3¾ hours to 5¾ hours from the beginning of the feeding. The influence of the composition of the food upon the emptying time is a subject for future investigation.

3. When a bismuth feeding is given and is followed by another feeding without bismuth at the end of the regular nursing interval (whether 2, 2½ or 3 hours), the bismuth residue from the first feeding does not mix intimately with the new feeding, but appears to be pushed out into the small intestines much more quickly than when left to itself. The suggestion is strong that the new feeding, if not excessive, stimulates peristalsis by distension of the stomach and hastens the expulsion of the residue from the previous feeding; on the other hand, if the distension is excessive, or if the new feeding comes at a shorter interval than the child is accustomed to, peristalsis may be inhibited and the emptying time of the stomach delayed.

4. In congenital pyloric stenosis, the Roentgen ray gives a definite picture, unlike that shown in other cases of vomiting. After a posterior gastro-enterostomy, the stomach appears to expel its con-

* See JOURNAL, page 485.

* See JOURNAL, page 506.

tents through the artificial opening more rapidly than through the pylorus in normal digestion.

THE COMPLEMENT FIXATION TEST IN THE MANAGEMENT OF GONOCOCCUS VULVO-VAGINITIS.

By G. G. Smith, Boston.

The author reports the results of the application of this test to 25 cases in the Genitourinary Clinic of the Massachusetts General Hospital. The patients were girls whose ages ranged from 3 to 12 years, each one of whom had shown, at some time, a vaginal discharge containing gonococci.

The test was positive in 11 out of 12 clinically positive cases, and in 4 cases in which the evidence was inconclusive. It was negative in 3 cases in which other evidence of cure was insufficient. In 7 cases, a negative test was supported by a clinical condition indicative of cure, and upon this evidence the writer bases his belief that vulvo-vaginitis is curable, and that, in establishing a cure, the complement fixation test is of very considerable value.

DISCUSSION.

Dr. H. Cabot said that Dr. Lucas came to the conclusion that the disease was incurable, as did Hamilton and others. These observations are not in line with gonococcus in the adult, which dies of its own accord, and dies within three years. The more likely cause is that they are continually exposed to the original source of infection and may be reinfected. The families should, therefore, be investigated more thoroughly.

Dr. C. L. Scudder said that he had considerable experience with infection of the Fallopian tubes in adults and would like to know whether any of these cases show evidence of salpingitis in children.

Dr. H. I. Bowditch said that he saw Dr. Van Ingeus' treatment of packing with argyrol which cured an acute case, but did not know whether the cases recurred. Packing with argyrol is painful. Does the treatment sensitize so that children are more easily infected?

Dr. Charles G. Mixter said that he has not seen gonococcal salpingitis in children.

Dr. R. M. Smith thinks that the test is of value to determine whether it is right for girls that have been previously infected to go back to school. The social service help is very important in finding and removing the original source of infection.

Dr. R. L. DeNormandie says that the school board does not recognize that there is such a disease as gonorrheal vaginitis in children.

Dr. A. R. Kimpton said that he remembered a girl of ten or eleven years with pus tubes.

Dr. H. Cabot has seen four or five cases of seven and eleven years with gonorrheal vaginitis with salpingitis. His impression is that the nearer to puberty the more likely they are to have salpingitis.

Dr. R. M. Smith said that he had seen two cases of salpingitis in the Children's Medical Department of the Massachusetts General Hospital.

Dr. G. G. Smith, in closing, said that the source of infection is known in about one-half of his cases, from four, the older sister, two rape, two cases from hospitals, two cases showed ruptured hymen. As regards duration of treatment, the cases were not under complete control. The discharge, however, had been stopped in from four to six weeks.

Book Reviews.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, Esq., member of the Ohio and New York Bars; Contributing Editor to many Legal Publications. Octavo, 325 pages. Cloth. Philadelphia and New York: Lea & Febiger. 1913.

This book is of unusual character and one which may well serve for reference in many matters in which the physician comes in contact with the law. It is becoming increasingly evident that a knowledge of law is desirable, if not essential, to the physician, and it is this want which Culbertson's book attempts to meet. An indication of the scope and subject matter may be had from some of the chapter titles, as, for example, "Who May Practice Medicine and Surgery," "Relation of Physician to Patient," "Malpractice or Negligence," "Criminal Liability of Physicians and Surgeons," "Physicians and Surgeons as Witnesses." All these and other matters are discussed at considerable length and with liberal appeal to precedents. The arrangement of the text is such as to make possible ease of reference and the typography is a special credit to the publishers. We cordially commend this volume to physicians and to others interested or concerned with the complex relations of society.

Bacteria. By Dr. Max Schottelius. Second edition. Translated by Staff-Surgeon Herbert Geoghegan, R.N. London: Henry Froude, Oxford University Press; and Hodder and Stoughton, Warwick Square, E. C.

This is a small book of 317 pages, written for the lay-public. There are six chapters with the following titles: Position of Bacteria in the Scheme of Nature and in Regard to Other Forms of Life, Bacteriological Research Methods, "Disease" and the Means of Combating Infectious Diseases, Immunity and Protective Inoculation, Infectious Diseases, Protozoa as Pathogenic Organisms. It is very admirable in its arrangement and treatment of subjects and valuable because of its sane presentation, and it is to be hoped that the volume will be widely read. It is interestingly written, is scientifically accurate, and should be useful as an antidote to the distorted matter, so frequently presented by popular periodicals, on the subject of infections and disease. There are a few excellent colored plates taken from authoritative works. The addition in the second volume of chapters on Immunity and Protective Vaccination, and Protozoa, have materially increased the value of the volume.

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PROGRESS OF DR. FRIEDMANN'S DEMONSTRATIONS.

IN the issue of the JOURNAL for March 6 (Vol. clxviii, p. 362) we summarized editorially the history of Dr. Franz Friedrich Friedmann's method of treating tuberculosis by intravenous and intramuscular injection of a preparation of living tubercle bacilli, and discussed briefly the aspects of his visit to the United States. And in the succeeding issues, of March 13 and 20, we noted (pp. 402 and 442) the progress of the clinical demonstration of his method.

After the adjustment of certain technicalities, affording him the necessary privilege, material, and facilities, Dr. Friedmann proceeded to the actual treatment of cases in various New York hospitals. Three were injected on March 6, seventeen on March 8, and on March 9 seven in the presence of Dr. F. F. Anderson and Dr. A. M. Stinson, of the United States Public Health Service, who have been appointed an official committee of investigation, and to whom samples of the vaccine were submitted for examination.

On March 10 Dr. Friedmann left New York for Canada, reaching Montreal on March 11. On this day he treated 30 cases at the Royal Edward Institute. In the evening he addressed the Canadian Association for the Prevention of Tuberculosis, at Ottawa, Ontario. On March 12 he treated 10 patients at the Ottawa General Hospital; and on March 14, 50 adults and 20 children at Toronto. On March 15 he treated many more cases at Toronto, and on March 16 returned to New York.

Since his return from Canada, on March 16, Dr. Friedmann has given his anti-tuberculosis treatment to a considerable number of patients at clinics held at Bellevue and Mount Sinai Hospitals, the Hospital for Deformities and Joint Diseases, and the Montefiore Home and Hospital for Chronic Invalids; and Dr. Brannan, president of the Board of Bellevue and Allied Hospitals, has announced that bulletins will be issued from time to time reporting the condition of the patients treated at Bellevue. In the meanwhile the United States Public Health Service, through a special board of medical officers, is making a thorough investigation, by means of laboratory research and personal observation of patients under treatment in the New York hospitals, of Dr. Friedmann's claims. It is reported that many of the cases treated have already shown evidence of improvement. One case died three days after receiving the treatment; but as this patient was practically moribund at the time of inoculation, the fatality is hardly surprising.

On March 15 the Boston City Council passed a unanimous order that Dr. Friedmann be invited to demonstrate his method of treatment in this city. The matter was laid before the trustees of the Boston Consumptives' Hospital, upon whose advice the invitation was not given. On March 18 the Massachusetts State Board of Trustees of Hospitals for Consumptives issued, in a letter to the public daily press from its secretary, Dr. John B. Hawes, 2nd, the following wisely conservative statement:—

"The Friedmann preparation is a form of serum or vaccine which has been cultivated by growth in cold-blooded animals, such as the turtle. The exact details of its preparation have not as yet been made public. There is nothing particularly new in it, however, as earnest workers in every land have been and are still carrying on investigation along the same lines. The consensus of opinion by those most qualified to know, tuberculosis experts and scientists in this country and in Europe, is that the preparation will probably do no harm in the hands of skilful and experienced men. There is as yet no evidence as to its ability to cure, or indeed to bring about any radical improvement in pulmonary tuberculosis or consumption.

"While we deplore the great publicity which has been given Dr. Friedmann and his preparation and the exaggerated and garbled accounts which have been made concerning it, the Board believes that it is only right that Dr. Friedmann should be given every legitimate opportunity to prove the value of his discovery. On the other hand, the Board would urge the general public

and physicians to maintain a calm, sane and conservative attitude in this matter, and would advise that no physician allow his patients to be treated with this preparation, and that no patient take any step toward securing such treatment until it has been carefully investigated by those who are qualified to judge as to its merits. We should all welcome anything which is going to assist in curing consumption; it would be a great misfortune, however, and would do much harm to raise false hopes and expectations concerning any discovery which may or may not prove of benefit."

From Berlin, conflicting reports are received relative to professional opinion of the merits of Dr. Friedmann's work in that city. Professor Bier, of the University of Berlin, who has been widely quoted as having spoken favorably of Dr. Friedmann's treatment, issued on March 18 the following unequivocal statement of his position:—

"I must publicly protest against the misuse of my name for the recommendation of a remedy of whose effectiveness I have so far no evidence. I hope that this statement may find its way into the foreign press as quickly and as widely as my alleged recommendation of the treatment. It should also relieve me of the burden of constantly answering letters and stating that I have seen as yet no evidence of any unusual curative action of Friedmann's treatment."

Apparently abundant opportunity has been afforded and will be afforded Dr. Friedmann to demonstrate his method in America, and his preparation has been submitted to official federal authorities for determinative examination and test. The case now rests *sub judice*, and we can have no doubt will in time be decided equitably, impartially and definitively. Meantime the attitude of the public and of the profession should be one of dignified expectancy.

THE EXECUTION OF CHARLES THE FIRST.

The first of April just past was the centennial anniversary, not of the death, but of the exhumation, of Charles the First of England.

Charles Stuart, as is well known, died like a brave man on Jan. 30, 1649, on the scaffold at Whitehall, whither he was brought from his last days of peace at Carisbrooke Castle, now a romantic ruin in the Isle of Wight. Boswell, in his famous biography, records how Dr. Johnson once asked of old Auchinlech, the judge, Boswell's father, "What did Cromwell do?" "Cromwell do?" replied the judge, "God, sir, he gart Kings ken that there was a lith in their neck!" This phrase would have been a little more germane, had Charles been hanged instead of beheaded; but the moral in either case is apt enough. Incidentally it serves to recall the good old noun *lith*, a joint, now unhappily lost from popular parlance as well as from medical nomenclature, except in its adjectival form *lithe*. Lith was a word of common use in olden times. Sir Thomas Malory, for instance, in his "noble and joyous book entitled *Le Morte Darthur*" tells (Book III, Cap. xiii) how King Pellinore escorted the lady Eleine to Camelot: "And so as they rode in a valley it was full of stones, and there the lady's horse stumbled and threw her down, that her arm was sore bruised and near she swooned for pain. 'Alas! sir,' said the lady, mine arm is out of lith, wherethrough I must needs rest me.'" The term might well be restored to the language of accident room casualty.

So King Charles had his neck put permanently out of lith and was buried with his fathers in the crypt of St. George's Chapel at Windsor. But on April 1, 1813, his royal tomb was opened in the presence of the Prince Regent, afterwards George IV, of the Duke of Cumberland, of Count Munster, of the Dean of Windsor, of Mr. Benjamin Charles Stevenson, and of Sir Henry Halford, the court physician, in whose "Essays and Orations" (London, 1831) is preserved a circumstantial account of the event.

When the coffin was opened and the well preserved body of the august, decapitated monarch was examined, "the fourth cervical vertebra was found to be cut transversely, leaving the surfaces of the divided portions perfectly smooth and even." After the coffin had been soldered up, it was found that one-half of the severed vertebra had become detached from the neck and had fallen aside unnoticed. The Prince Regent deemed it unnecessary that the coffin should be reopened for the replacement of the fragment, which he therefore presented to Sir Henry Halford. The latter valued this royal relic highly, and caused it to be placed "in a case specially carved of lignum vitae lined with gold, with a fitting Latin inscription inside the lid." His biographer, Munk, records that Sir Henry used even to exhibit this relic as a precious curiosity to privileged persons at his dinner table. It was finally given by his de-

scendant, Sir Henry St. John Halford, to the late King Edward VII, then Prince of Wales, "who returned it to the vault and deposited it in its case on King Charles's Coffin."

Of Charles's physical characteristics during life little is known, save that his most notable defect was a somewhat painful stammer. This may well have been a manifestation of the neuropathic heredity which he had through his father, James I, from Mary Queen of Scots, and which culminated in his licentious son, Charles II. Howbeit, the subsequent canonization of Charles the First as a martyr has deservedly marked him as a better man than either his predecessor or his successor upon the English throne.

MENTAL HYGIENE EXHIBIT AND CONFERENCE.

THE first exhibit and conference of the Massachusetts Society for Mental Hygiene, in cooperation with the National Committee for Mental Hygiene, is being held in Boston during the current week. Similar conferences have been held this winter at New York, Philadelphia, Baltimore, and New Haven, and it is believed have been of great educational value and productive of much public good. Their purpose is to diffuse information about the study and prevention of nervous and mental disorders which are manifested in the phenomena of the feeble-minded, defective, delinquent, criminal and insane. At each of the sessions there are addresses, illustrated by lantern slides and by the exhibition of charts and photographs. Among the papers presented during this week may be enumerated the following: "The Methods of Studying Human Activities," Professor Stewart Paton, of Princeton; "Immigration and the Prevention of Insanity," Dr. Thomas W. Salmon of New York, director of the National Committee for Mental Hygiene; "The Medical, Hygienic and Social Value of the Psychopathic Hospital," Dr. Elmer E. Southard, director of the Psychopathic Hospital, Boston; "Mental Hygiene in the School," Dr. William H. Burnham, professor of Pedagogy and School Hygiene, Clark University, Worcester; "Mental Hygiene in the Development of the Child," Dr. W. F. Dearborn, Harvard; "Four Laws for Mental Hygiene," Dr. Richard C. Cabot, physician in charge of the Social Service Department of the Massachusetts General Hospital; "Mental Development in Its Relation to Eugenic Measures," Professor Robert M. Yerkes, professor of Psychology at Harvard; "Modern Methods of Dealing with Mental Diseases," Dr. George T. Tuttle, superintendent McLean Hospital; "Prevention of Mental Defectives," Dr. Walter E. Fernald, superintendent Massachusetts School for the Feeble Minded, Waverly; "Mental Deviates," Dr. Frank C. Richardson, professor of Neurology at Boston University School of Medicine; "Our Obligation to Understand the Working of Our Own Minds," Dr. James J. Putnam, Neurologist Massachusetts General Hospital; "A Program of Practical Measures for Mental Hygiene Work," Dr. Henry R. Stedman, chairman board of trustees, Taunton State Hospital; "The Treatment and Care of Inebriates," Dr. Irwin H. Neff, superintendent Foxboro State Hospital; "The Importance of Mentality in the Care of Juvenile Offenders," Hon. Harvey H. Baker, judge of the Juvenile Court, Boston; and "The Relation of Syphilis to Mental Disease," Dr. Samuel T. Orton, Ph.D., Psycho-Pathologist, Worcester State Hospital.

The mental hygiene exhibit, as it has been shown in Boston this week and previously in other cities, is essentially the same as that arranged by the National Committee for Mental Hygiene for the Fifteenth International Congress of Hygiene and Demography at Washington in September, 1912. At that time Dr. Lewellys F. Barker, professor of internal medicine at Johns Hopkins University, spoke as follows of the proposed work of the committee, of which he is chairman:—

"By a campaign for mental hygiene is meant a systematic attempt to secure human brains, so naturally endowed and nurtured that people will think, feel, and act better than they do now. Such a campaign was not possible before the rise of modern medicine. Only with this rise have we come to look upon states of mind as directly related to states of brain, to view insanity as disordered brain function, and to recognize in imbecility and in crime, the evidences of brain defect.

"Only a minority of the public know and realize that the kind of mind an individual has depends on the inborn qualities of brain he inherits and the influences which act upon it afterwards. Not many know that forty to fifty per cent. of all severer causes of mental disorder are due to known and well-defined causes, preventable by means with which we are now acquainted; that twenty-five per cent. of patients admitted to institutions for insane, and a large proportion of the criminals in confinement have

brains that have been injured by the abuse of alcohol.

"Only a few are aware that there are about 250,000 insane people in the United States today, and that the number is increasing at the rate of two to four per every 1000 of increase of population.

"Nor as yet has it been possible to impress the public with the facts that the social stigmatizing of the insane is cruel and unreasonable; that suicide, occurring as a result of psychopathic constitution should excite the sympathy rather than the moral judgment of those who think humanely; that every treatment of insanity in suitable institutions leads to complete recovery in at least twenty-five per cent. of the cases; or with a thousand other facts that ought to be known and realized."

That there are actually more insane persons in the asylums and hospitals of the United States than there are students in its colleges, universities and professional schools is surely a subject that should give us all pause for serious reflection.

THE GLASGOW LISTER WARD AND MUSEUM.

In the issue of the JOURNAL for Feb. 20 (Vol. clxviii, p. 295) we reprinted from the *Journal of the American Medical Association* a letter with editorial comment relative to the proposed international memorials to Lord Lister, including the Lister Ward at Glasgow. We have just received from Mr. A. Ernest Maylard, of Glasgow, the following notice about this ward and the museum which it is to contain, to which we wish to direct particular attention:—

"As a memorial to the late Lord Lister, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of antiseptic surgery, is to be reserved and utilized in the following way: One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a Museum for the exhibition of anything associated with the life and work of the great master.

"It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the Museum.

"Professor John H. Teacher, M.D., Hon. Curator of the Museum, will be pleased to receive any objects addressed to him at the Royal Infirmary, Glasgow, Scotland.

"The names of all donors or senders of objects are to be affixed to the exhibits."

It is with profoundest regret we must state that the response of the American profession to the former call for subscription to the Lister memorials has been shamefully inadequate. All such temporal recognition of so incalculable service as that of Lister to medicine and to mankind is, of course, utterly incommensurate with the worth of that service, as is the recognition that can be given to any genuine benefactor of mankind. But it is altogether desirable that the recognition should be made, and we most sincerely hope the publication of this notice will stimulate increased interest, and evoke more cordial contribution from our country to this Lister Ward and to all the Lister memorials.

THE PREVENTION QF DISEASES OF OCCUPATION.

Among the legislative measures of medical interest at present pending before the General Court of this Commonwealth is one dealing with diseases of occupation, which is of peculiar importance in view of the recent rapid growth of industrial activities within our State. The need of protection to workmen in these industries is obvious, and this bill aims to provide the machinery for such protection.

"The State Board of Health is authorized by the bill to define lead, arsenic, mercury, phosphorus and wood alcohol poisoning to be "dangerous to the public health," and to add to the list of diseases incident to them, from time to time, 'any occupational disease or definite symptoms of disease due to occupational processes or conditions' that may be deemed necessary. Upon the State Board of Labor and Industries is placed the responsibility of reporting to the Health Board all causes of disease in industrial establishments which are declared by the latter to be dangerous to public health. Appropriate penalties are provided for any employer who fails to comply with the requirements laid down for him in this connection, in the body of the bill."

This measure is approved by the Massachusetts State Board of Health. It is now in the hands of the Committee on Social Welfare, and it is to be hoped that their favorable report may lead to its early enactment by the legislature.

AMERICAN ACADEMY OF ARTS AND SCIENCES.

On Wednesday of next week, April 9, the annual meeting of the American Academy of Arts and Sciences is to be held at the Harvard Medical School. At 5.45 p. m. there will be a lantern slide exhibit by Dr. S. B. Wolbach, demonstrating his study of sleeping sickness in Africa. Among the important papers to be presented in the evening may be mentioned one on "The Pneumonic Plague in Manchuria," by Dr. Richard Pearson Strong, recently appointed professor of tropical medicine in the Harvard Graduate School of Medicine. This will be given at 8 p. m. in the lecture room of Building D, and all members of the medical profession are cordially invited to attend. Dr. Strong's talk will be followed by Dr. F. B. Mallory, who will explain the result of his recent investigation of whooping-cough.

MEDICAL NOTES.

Iowa Association of Orificial Surgeons.—The first annual meeting of the Iowa Association of Orificial Surgeons was held in the parlors of the Savery Hotel at Des Moines, Iowa, March 5. The following officers were elected: President, Dr. W. H. McCartney, Des Moines, Iowa; vice-president, Dr. C. L. Stoddard, Boone, Iowa; secretary-treasurer, Dr. W. J. Buck, Des Moines, Iowa; Dr. A. E. Shaw and Dr. W. A. Guild, both of Des Moines, Iowa, members of the Executive Committee. Des Moines was chosen as the place of the next meeting. Dr. E. H. Pratt, A.M., M.D., LL.D. of Chicago, Illinois, conducted an Orificial Clinic at the Des Moines General Hospital in the forenoon. Eight cases were operated on, demonstrating the fundamental principles of orificial surgery.

Prevention of Infant Mortality.—An English-speaking Conference on the Prevention of Infant Mortality will be held in Caxton Hall, Westminster, London, on Monday morning, Monday afternoon and Tuesday morning, August 4 and 5. The meetings will be held under the auspices of the (British) National Association for the Prevention of Infant Mortality and The Welfare of Infancy under the patronage of the King and Queen, and will convene immediately preceding the opening of the International Medical Congress.

A tentative program has been issued by the Committee which indicates that the papers will consist largely of medical opinion. The subjects treated will be:—

The Responsibility of Central and Local Authorities in Infant and Child Hygiene.

The Administrative Control of the Milk Supply.

The Necessity for Special Education in Infant Hygiene.

Medical Problems in Infant Nutrition.

Ante-natal Hygiene.

The president of the Conference will be the Hon. John Burns, M.P., president for the Local Government Board. The chairman of the English Executive Committee is Sir Thomas Barlow, and the secretary, Miss J. Halford, 4 Tavistock Square, London, W. C.

The American Committee, in charge of the part to be taken by the United States and Canada, will furnish information to those desiring to attend the conference.

Dr. Henry L. Coit, chairman, 277 Mt. Prospect Avenue, Newark, N. J.

Dr. Philip Van Ingen, secretary, 125 East 71st Street, New York City.

The World's Output of Radium.—An item in a recent issue of the London *Times* states that the total production of radium in the world, since the discovery of this element by Madame Curie, has been only 30 grams.

Death from Colored Candy.—Report from Kelliher, Saskatchewan, on March 23, states that three young children of that town died there recently after eating some colored candy, which is believed to have contained some poisonous ingredient.

A Gypsy Centenarian.—Maria Tom, a gypsy of Savannah, Ga., is reputed by members of her tribe to have been born in 1804. She is said to attribute her longevity and good health to her life-long habit of smoking tobacco.

Progress of the Balkan War.—Since the resumption of hostilities, the Balkan War has progressed with steady victory for the Allies. Janina was captured by the Greeks on March 6, and Adrianople and Tchatalja by the Bulgars on March 26. Meanwhile the sufferings of both victors and conquered from surgical disease and epidemic pestilence continue unabated. The total of the Massachusetts Red Cross fund for their relief now amounts to $9,617.41.

BOSTON AND NEW ENGLAND.

Homeopathic Hospital Training School.—At the annual graduation exercises of the Massachusetts Homeopathic Hospital Training School, held in Boston on Wednesday evening of last week, March 26, diplomas were awarded to a class of nineteen pupil candidates.

Harvard Veterinary Medical Alumni.—The sixteenth annual meeting of the Harvard Veterinary Medical Alumni Association was held in Boston on Wednesday evening of last week, March 26. The principal address was delivered by Dr. R. E. Dyer, veterinary surgeon of the Boston Board of Health. The following officers were elected for the ensuing year: president, Dr. P. J. Cronin, chief veterinary of the City of Boston; vice-president, Dr. John P. Conners, his assistant; secretary and treasurer, Dr. William S. Naylor, of Roxbury, Mass.

Cutter Lectures on Preventive Medicine.—The first of this year's series of the Cutter Lectures on Preventive Medicine and Hygiene was delivered at the Harvard Medical School on March 31, by Mr. George C. Whipple, professor of sanitary engineering in Harvard University, on "The Use of Vital Statistics"; the second on April 2. The third lecture will be on April 7.

Abolition of Free Lunch.—Report from Hartford, Conn., on March 24, states that the Connecticut State Anti-Tuberculosis Commission is in favor of a bill, now before the General Assembly, prohibiting and abolishing saloon free lunch.

"The Commission maintains that the free lunch counter in the poorer class of saloons especially is one of the most dangerous means of transmission of tuberculosis germs because the utensils with which it is taken are seldom washed and are a constant source of infection."

Death of a Quadruplet.—In the issue of the Journal for Aug. 15, 1912 (Vol. clxvii, p. 234) we noted with unusual interest the birth on August 5 of a set of human quadruplets in Dorchester, Mass.; and in the issue for Sept. 26 (Vol. clxvii, p. 447) we commented with satisfaction on the progress of these infants, who were then apparently all well and gaining weight. It is therefore with peculiar regret that we learn that on March 21, 1913, Virginia, the eldest of the quadruplets, died of broncho-pneumonia. The three others are reported to be quite well. We believe this is the only recorded instance in which all four of human quadruplets have lived so long. Probably the survival of even three is unusual. Whatever may befall them in future, the case already stands unique in medical literature.

Infants' Hospital Festival.—On Thursday of next week, April 10, a spring festival will be held at the Copley-Plaza Hotel, Boston, for the benefit of the Infants' Hospital. All who are interested in the work of this important medical charity are cordially urged to attend.

Recent Hospital Bequests.—The will of the late William Claxton, of Beverly, Mass., which was filed at Salem, Mass., on March 22, contains a bequest of $500 to the Beverly Hospital.

The will of the late Abel H. Proctor, who died on March 6 at Salem, Mass., has been filed at the probate court in that city. It contains a bequest of $50,000 to the president and fellows of Harvard College to be added to the fund of Ellen Osborn Proctor for the study of chronic diseases, the direction of the fund to be under control of the heads of the departments of theory and practice of physic, clinical medicine and pathology of the Harvard Medical School. After the death of certain annuitants, one-fourth of the residue of the estate is to revert to the Massachusetts General Hospital, for the general purposes of the McLean Hospital, and the remaining fourth to the Perkins Institution and Massachusetts School for the Blind, to be applied to general uses and purposes of the kindergarten for the blind.

The will of the late Hannah E. Sargent, of Brookline, Mass., which was filed recently in the Suffolk country probate court, contains a bequest of $500 to the New England Baptist Hospital, Boston.

NEW YORK.

The Mount Sinai Hospital.—Mount Sinai Hospital has received a donation of $125,000 from Messrs. Samuel and Harry Sachs for the support of free beds in the neurological department, in memory of Joseph and Sophia Sachs. A new ward has been opened for children suffering from nervous diseases, and the men's and women's wards of the neurological division have been enlarged. One of the new buildings which the Hospital is about to erect will be designed with special reference to the requirements of a thoroughly equipped neurological institute.

SYDENHAM HOSPITAL.—At a meeting of the directors of the Sydenham Hospital, held March 20, it was decided to erect a new six-story modern hospital, with 200 beds, on the site of the present building on East 116th Street, which contains 72 beds. It is to cost $350,000, and of this amount $100,000 has been contributed by Isaac Guggenheim, the banker.

ANTI-MENINGITIS SERUM.—In reply to a statement reported to have been made by Dr. S. F. Kramer to the Cincinnati Academy of Medicine to the effect that four children had been killed at the Cincinnati Hospital by the use of Flexner anti-meningitis serum received from New York, a result attributed to the tricresol employed as a preservative, Dr. Flexner has sent the following telegram: "If the serum itself or the preservative tricresol contained in it were the cause of the deaths reported by Dr. Kramer, many other similar reports should have been received. Considering the wide use of the serum and the consensus of opinion that it is not harmful, but highly beneficial to children, as well as adults, I see no reason to attribute the effects reported to either the serum or the preservative."

RECENT BEQUESTS.—Under the will of the late Dr. Charles F. Myers of New York, $25,000 is left to Acadia University, Nova Scotia, for the establishment of a professorship of biology and zoology.

By the will of the late Carl M. DeSilver, $50,000 is left to the Brooklyn Institute of Arts and Sciences and $2,500 each to a number of other Brooklyn institutions and societies, among which are the Eye and Ear Hospital and St. Giles Home for Crippled Children.

A CENTENARIAN.—Mrs. Marie Drown, of New York, a native of Westphalia, Germany, died on March 21, in her 100th year.

ALBANY HOSPITAL NURSES' HOME.—Report from Albany, N. Y., on March 21, states that the general contract has been awarded for the construction of a new nurses' home for the Albany Hospital.

"The building will be 192 x 85 feet, five stories and basement, of brick, re-enforced concrete and steel construction."

LOOMIS SANATORIUM.—The recently published sixteenth annual report of the Loomis Sanatorium for the Treatment of Tuberculosis records the work of this institution for the year ended Oct. 31, 1912. During this period, 355 patients were admitted to the various divisions, and 354 were discharged. The Babbitt Memorial Medical and Laboratories Building and Olivia Cottage were dedicated and formally opened on June 21, 1912. The principal need of the Sanatorium at present is money for a new sewage disposal plant.

Current Literature.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

FEBRUARY, 1913.

1. *MAYO, W. J. *Some of the Disputed Problems Associated with Surgery of the Large Intestine.*
2. VAUGHAN, V. C. *The Relation of Anaphylaxis to Immunity and Disease.*
3. *ELSNER, H. L., AND MEADER, F. M. *Chronic Purpura, and Its Treatment with Animal Serum.*
4. MILNE, L. S. *The Present Value of the Wassermann Reaction.*
5. VOGE, K. M. *Diaphragmatic Hernia, with Report of a Case.*
6. WHITE, W. A. *Some Considerations Regarding the Factor of Fatigue, with Reference to Industrial Conditions.*
7. *NORRIS, W. G., AND FETTEROLF, G. *The Topography of the Cardiac Valves as Revealed by the X-rays.*
8. SEWALL, H. *The Rôle of the Stethoscope in Physical Diagnosis.*
9. *HEARD, J. D., AND BROOKS, R. C. *A Clinical and Experimental Investigation of the Therapeutic Value of Camphor.*
10. *PEPPER, O. H. P., AND AUSTIN, J. H. *Some Interesting Results with the Phenolsulphonephthalein Test.*
11. GORDINIER, H. C., AND SAWYER, H. P. *Primary Adenomata of the Liver Simulating Hanot's Hypertrophic Cirrhosis.*

1. Mayo mentions briefly a number of facts, anatomical, physiological and clinical, which may be of surgical importance. Of chief interest is the discussion of the functions of the cecum, which seems to play an important part in absorption, and may also play a part in metabolism. A clinical observation mentioned is that in cancer and in tuberculosis of the cecum there may be profound anemia which is not found to accompany more advanced tumors of the sigmoid.

3. Elsner and Meader review the literature of the serum treatment of chronic purpura and report two cases. In one the serum treatment seemed to be only of temporary benefit, but in the other there was apparently complete recovery, the last observation being made nearly a year after the treatment was discontinued.

7. Norris and Fetterolf contribute an interesting preliminary report as to the topography of the cardiac valves, which they studied by means of hardened and frozen cadavers sawed into frontal sections in which the valves were rendered resistant to x-rays by lead paint. The sections were then reassembled and radiographs made. The photographs of the sections and the radiographs of the bodies so treated are of great value, not only as showing the positions

of the valves but also in furnishing evidence upon other questions in the anatomy of the chest.

9. Heard and Brooks discuss the therapeutic value of camphor in the light both of clinical and of laboratory experiments. In the latter no certain evidence of action as a cardiac stimulant was obtained, and in the former camphor injected subcutaneously in doses as large as 50 grains failed to produce any definite effects. They conclude that the drug is not to be relied upon as a cardiac stimulant.

10. Pepper and Austin report three cases in which the findings by the phenolsulphonephthalein test are worthy of note. In the first, with clear evidence of a bilateral parenchymatous nephritis, the elimination was not delayed. The second case, one in which a bilateral decapsulation had been done, but in which symptoms of nephritis had recurred, also showed normal elimination of the dye. In the third case, one of bilateral cystic kidneys, the phthalein elimination was almost absent, but the excretion of chlorides and of the nitrogen of a restricted diet were approximately complete. [F. W. P.]

Bulletin of The Johns Hopkins Hospital.

March, 1913.

1. Klebs, A. C. *The Historic Evolution of Variolation.*
2. *Nuttall, G. H. F. *Lectures on the Herter Foundation. II.*
3. Holt, L. E. *The Children's Hospital, the Medical School, and the Public.*
4. McCaw, W. D. *In Memoriam. Dr. Robert Fletcher.*

2. In the second Herter Foundation Lecture, Nuttall considers the general subject of trypanosomiasis, taking up sleeping-sickness, nagana and other glossina-transmitted trypanosome infections. [J. B. H.]

The Lancet.

March 1, 1913.

1. *Berry, J. *Lettsomian Lectures on the Surgery of the Thyroid Gland, with Special Reference to Exophthalmic Goitre.*
2. *Bruce, J. M. *The Elements of Prognosis in Pulmonary Tuberculosis.*
3. Castellani, A. *Typhoid and Paratyphoid Vaccinations with Live Attenuated Vaccines; Mixed Vaccines.*
4. Riseley, G. *Should a Man with Miner's Nystagmus Work?*
5. Corner, E. M. *Perforation of Gastric or Duodenal (Pyloric) Ulcers. Inferences on Modern Treatment Drawn from Histories of Patients Who Have Recovered.*
6. White, C. *The Contraction Ring as a Cause of Dystocia, with a Description of a Specimen Removed by Hysterectomy During Labor.*
7. Voigte, J. C. *A Summary of Three Hundred and Forty Cases of Pulmonary Tuberculosis Treated During Twenty-Five Years' Practice.*
8. MacMahon, C. *Functional Aphonia. A Method of Curative and Preventative Treatment.*

1. In the first Lettsomian Lecture, Berry considers hyperthyroidism or exophthalmic goitre from the pathological side, discussing the morbid anatomy of the gland in this condition in early as well as in late cases, as well as in secondary Graves' disease. He compares these with the changes found in simple parenchymatous goitre, and discusses the relation of Graves' disease to simple thyroid hypoplasia. He then takes up the subject of persistence and enlargement of the thyroid gland and briefly discusses the parathyroids. Exophthalmos in this disease he says is due purely to a collection of fat in the orbit, though why this is so he does not know. He emphasizes the need of careful study of the condition of the heart. He briefly considers medical and serum treatment.

2. Bruce discusses the various factors which may influence prognosis in pulmonary tuberculosis. From the bacillus itself we get no information, except that the patient has the disease. The degree of the patient's immunity can only be obtained from a careful study of constitution, inherited or acquired surroundings, occupation, and course of the disease. A third factor is the circumstances, social and financial, etc., of the patient. He discusses these factors in incipient disease and in well marked phthisis and in quiescent tuberculosis. To those to whom this question is a common and important one this paper will be of great value. [J. B. H.]

British Medical Journal.

March 1, 1913.

1. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture I.*
2. Davis, O. C. M. *The Use of Physical Constants in Toxicology.*
3. Cole, P. P. *The Intramural Spread of Rectal Carcinoma.*
4. Young, A. *Dislocation of the Metatarsus, with an Account of Three Cases.*
5. Knight, E. *The Application of Fungi as Styptics.*
6. *Bourne, A. W. *After-History of Gastro-enterostomy for Peptic Ulcer.*
7. Black, K. *A Method of Performing Gastro-jejunostomy.*

1. In the first Goulstonian Lecture Jex-Blake considers death by electric currents and the post-mortem evidence as to the cause of death: he considers evidence bearing on this subject coming from anatomical and electrical considerations as well as that obtained from experimental investigation. In a general way, post-mortem evidence is usually negative. The consensus of opinion seems to be that death is due to: (*a*) paralysis of the heart, or (*b*) paralysis of the central nervous system.

6. Bourne has studied the after-history of 65 cases on whom the operation of gastro-enterostomy has been performed for ulcer of the stomach or duodenum. Results are generally excellent cures or complete failures. His immediate mortality was 7.6%. General results were 43% excellent and 38% bad; prognosis is better when the patient is over forty. Duration of symptoms is of no assistance in forecasting the result of the operation. The length of time between the meal and onset of pain is of great importance. The longer it is the better: duodenal ulcers give better results than gastric,—38% gastric to 70% duodenal are cured. Failures may be due to: (*a*) recurrence, (*b*) formation of jejunal ulcer, adhesions and carcinomatous degeneration. Cases where an ulcer is *not* found at operation do badly.

[J. B. H.]

The Practitioner.

March, 1913.

1. Collie, J. *The Prevention of Malingering Under the National Insurance Act.*
2. *Sherren, J. *Gall-Stones. Observations on the Symptoms, Diagnosis and Surgical Treatment.*
3. *Barn, W. *Gall-Stone Disease. Medical Treatment.*
4. *Hope, C. W. M. *Suppuration in the Nasal Sinuses.*
5. Dighton, A. *Cavernous Sinus Thrombosis. With Report of Two Cases.*
6. *Ward, E. *The Treatment of Adenoids and Tonsils.*

7. COSTOBADIE, H. P. *Ear, Nose and Throat Work in General Practice.*
8. YEARSLEY, M. *A Retrospect of Otology, 1912.*
9. FLEMING, A. *Recent Work on Vaccine Treatment.*
10. MCCANN, F. J. *Progress of the Study of Diseases of Women During 1912.*
11. PHILLIPS, H. R. *Oxygen as an Adjuvant in General Anesthesia.*
12. SIBLEY, W. K. *Electrical Operative Treatments for Diseases of the Skin and Mucous Membrane.*
13. THORNE, L. T. *The Clinical Significance of Blood-Pressure Records.*
14. MCCARTHY, H. L. *The Diagnosis of Congenital Syphilis.*
15. AUBREY, G. K. *Medical Certificates of Lunacy.*
16. LAWRENCE, M. C. S. *Salicylate of Iron.*

2. In a paper dealing with the clinical side of gall-stone disease from the surgical point of view, Sherrin discusses the importance of a careful history, the symptoms, differential diagnosis from renal colic, movable kidney, appendicitis and diseases of the stomach and duodenum. He cites several cases, and ends by urging early operation.

3. Barn believes that the frequency of gall-stone operation is a reproach to medicine. He urges operation only after medical treatment. His article is hardly convincing.

4. This is a careful paper illustrated by numerous x-ray plates of the various forms and causes of suppuration in the nasal sinuses, including symptoms and treatment.

6. Ward believes that operation for removal of tonsils and adenoids is one of the most valuable in surgery, but that it should not be treated too lightly nor done without careful examination of the patient and good reasons for doing it. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

MARCH, 1913.

1. *MCNEIL, C., AND MCGOWAN, J. P. *Inquiry into Outbreaks of Febrile Illness, with Rapidly Fatal Cases, Occurring in a Boys' Industrial School Near Edinburgh.*
2. *LANGUILL, J. *Carcinoma of the Stomach.*
3. FLEMING, R. A. *Acute Toxic Polyneuritis.*

1. In this article the writers describe an outbreak of a very serious illness, apparently an atypical pneumonia. Pneumococci and blood-stained sputum were obtained from cases in each of the three types into which this outbreak naturally may be divided. This disorder showed: first, absence or great paucity of clinical signs and symptoms of pulmonary disease, and, second, signs of severe poisoning of the central nervous system. They believe that there must have been some other factor besides pneumonia to explain the rapidly fatal cases. This factor they believe to be an enlarged thymus and a condition of status lymphaticus. They raise the interesting question as to whether or not status-lymphaticus may not explain some of the so-called "fulminant" cases of acute infectious disease.

2. This paper is a careful analysis of 200 cases of carcinoma of the stomach. It is the commonest form of cancer in males. Females are more frequently affected than text-books would lead one to imagine. It is not so much a disease of middle age as is thought, as a marked proportion of cases occurs under forty years. Heredity plays an important rôle in etiology. All cases of gastric ulcer, healed or unhealed, are potential carcinomata. He continues with numerous other interesting and valuable suggestions and conclusions based on his study of these cases. The paper is of distinct practical value.
[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 7. FEBRUARY 18, 1913.

1. ASCHOFF, KRONIG AND GAUSS. *Effect of Radiant Energy on Deep-seated Carcinoma. (To be concluded.)*
2. *LESSER, E. J. *Mobilization of Glycogen.*
3. *BOEMEISTER, *Appearance of Virulent Tubercle Bacilli in the Blood After Injection of Tuberculin for Diagnosis.*
4. *KAHN, E. *Demonstration of Tubercle Bacilli in the Circulating Blood.*
5. KESSLER. *Demonstration of Tubercle Bacilli in the Blood.*
6. RAESTLE, R. *Simplified Roentgenography of the Stomach.*
7. BUCKY, G., AND FRANK, E. R. W. *Operations on the Bladder with the Help of High-frequency Currents.*
8. KISCH, E. *Drop Ether Anesthesia After Injection of Pantopon-Atropine Sulphate.*
9. FLATOW, L. *Practical Points for Estimating Uric Acid and Purin Bodies in the Urine.*
10. WAHLE, P. *Two Cases of Neosalvarsan Poisoning.*
11. GOEBEL, W. *Substitution of the Phalanges of the Fingers and Toes.*
12. BRUCK, C., AND GLÜCK, A. *Effect of Intravenous Infusions of "Aurum-Kelium Cyanatum."*
13. *LEHMANN, K. B. *The Active and Valuable Constituents of Coffee, with Special Reference to "Kaffee Hag" and "Thumkaffee." (Concluded.)*

2. The writer's experiments on frogs show results of unusual interest from the biochemical standpoint. Although difficult of explanation they may, later, prove illuminating in human diabetes.

3. That virulent tubercle bacilli may be present in the circulating blood and that they are common in the last stages of phthisis have been proven by inoculating guinea-pigs with blood from the patients. The writer made fifteen such tests in cases of early phthisis and had negative results. The tests were repeated at the height of the reaction following the injection of tuberculin and the outcome in four cases was positive.

Boemeister, therefore, urges caution in the use of tuberculin, and expresses his belief that not the height of the temperature, but the appearance of a local reaction at the point of injection indicates the presence of tubercle bacilli in the blood and that this reaction should be avoided when tuberculin is used either for diagnosis or for treatment.

4. The conclusion is reached that tubercle bacilli in the circulating blood can be detected with certainty by the animal test only because the blood normally contains substances which are acid-fast.

13. By careful observation of patients and by experiments, Lehmann finds that the only toxic substance in coffee is caffeine and that caffeine-free coffee is harmless. In the preparation of "Thumkaffee," on the contrary, no substances of hygienic importance are removed. It offers, therefore, no advantage. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 7. FEBRUARY 13, 1913.

1. KRAUS, R. *Methods of Combating Cholera in the Bulgarian War.*
2. KOCH, H. *The Circumstances of Origin of Tuberculous Meningitis.*
3. SLUKKA, E. *A Further Contribution on the X-ray Appearance of Tuberculosis of the Pulmonary Root in Children.*
4. DIETL, K. *The Pathology of Orthostatic Albuminuria.*

5. *Schiffman, F., and Vystadel, A. *Experiment Relative to an Internal Secretion of the Mammary Gland.*
6. Loger, A. *Knowledge of the Radiological Findings of the Large Intestine in Tumors in the Region of the Kidney.*

5. The authors sum up previous work as follows: Scherbak demonstrated that extirpation of the breast does not influence pregnancy and labor. He, however, showed that in young goats, following breast extirpation there was a disappearance of rut and in four instances a loss of weight of the uterus. Leo Adler found that following the injection of mammary extract the suprarenals enlarge, and in the pregnant uterus the product of conception dies away and abortion follows: and histologically is found a condition analogous to human hyperplastic glandular endometritis. Fedoroff found after injection of mammin, decrease in size of the uterus, atrophy of the muscularis, and cell infiltration in the submucosa.

The authors' experimental work substantiates that of Scherbak. They produced abortion in pregnant animals by the injection of mammary extract. Attempts, however, to produce abortion in pregnant women by using pituitrin and mammin together have not been successful. They found also that the ovaries, as well as the uterus, are diminished in size by injections of mammary extract, those of the control animal being twice as large as those of the injected animal. They then demonstrated that mammary extract injections cause a diminution in size of the testicles, also that microscopically spermatogenesis is further advanced in the control than in the injected animal. Using the same sort of animals they injected them with mammary gland extract from another species (cow) and obtained the same results, also they observed an increase in the size of the posterior lobe of the hypophysis and the suprarenals in these cases.

From these experiments they conclude that there is an internal secretion of the breast and that it is capable of arresting the development of the genitalia. [F. S. K.]

Deutsche Medizinische Wochenschrift.

No. 6. February 6, 1913.

1. Gottschalk, S. *The Causes and the Treatment of Discharge from the Female Genitals.*
2. Körte, W. *Typical Fracture of the Bones of the Face.*
3. Kausch, W. *Experiences with Rosenbach's Tuberculin.*
4. *Braun, W. *The Importance and Practicability of Prophylaxis and Early Treatment of Diphtheria.*
5. Ziemann, H. *Artificial Cultivation (in Vitro) of the Tertian Malarial Parasite.*
6. *Werner, H. *Human Trypanosomiasis.*
7. Sippel, A. *Differential Diagnostic Difficulties in Gynecology.*
8. *Jacobson, O. *The Diagnosis of Bronchostenosis.*
9. Fraenkel, D. *The Normal Body Temperature of Children and Its Behavior in Activity and Rest.*
10. *Johannessohn, F. *Clinical Contribution on the Value of Ureabromin.*
11. Keibel, E. *Experiences with Roche's Erysytyptic.*
12. Grozdel, F. M. *The Technic of Roentgen-Kinematography. (Second Communication.)*
13. Schurig. *The Therapeutic Employment of High Frequency Currents.*
14. Momburg. *The Question of the Points of Support of the Foot in Walking and Standing.*
15. Kaufmann, M. *Observations on Hypersusceptibility to Arsenic.*
16. Dutoit, A. *The Relations of Basedow's Disease to Thymus Hyperplasia.*

4. Braun believes that with better organization between physicians and the State, diphtheria might be eradicated at comparatively moderate cost.

6. Werner reports a case of trypanosomiasis, with sleeping sickness symptoms, from Portuguese East Africa, caused by *Trypanosoma rhodesiense*, which proved entirely resistant to atoxyl. Eighteen hours before death, the trypanosomes disappeared completely from the peripheral blood and from the lumbar spinal fluid. The latter was also free from bacteria and gave the Nonne-Apelt phase I reaction. There was no eosinophilia.

8. Jacobson states that inspiratory displacement of the mediastinal organs and heart towards the affected side,—demonstrable by percussion and skiagram,—is a constant and pathognomic sign of bronchostenosis.

10. Johannessohn believes that bromide of calcium and urea is a sure and safe sedative. He reports eleven cases of its successful use. [R. M. G.]

No. 7. February 13, 1913.

1. Iselin, H. *Detoxication of the Tuberculous Focus by Roentgen Irradiation. (To be continued.)*
2. Landau, M. *The Development of the Adrenal Cortex.*
3. Fanser, A. *Further Investigations (Five Series) on the Basis of Abderhalden's Dialysis Procedure.*
4. Dutoo, W. *Investigations with V. Dungern's Simplification of the Wassermann Reaction.*
5. Wachtel, S. *The Question of the Benzol Treatment of Leukemia.*
6. Hartung, E. *The Action of Luminal.*
7. Schuster. *Melubrin.*
8. Motzfeldt, K. *Diaphragmatic Eventration.*
9. Schricker, H. *Two Contributions on Gunshot Wounds of the Abdomen.*
10. Hirsch, C. *Sympathetic Nystagmus in Erysipelas.*
11. Schwald, E. *Erosions by Benzine.*
12. Brandenburg, W. *An Excessive Cartilaginous Oblique Nose.*
13. Weisz, E. *A Simple Splint for Extension and Flexion of the Knee Joint.*
14. Kindborg, E. *The Prophylaxis and Treatment of Hemorrhoids by Anicure.*
15. Hessing. *A Chin Support for the Prevention of Snoring.*

No. 8. February 20, 1913.

1. v. Wyss, H. *The Pharmacologic Foundations of Bromine Therapy in Genuine Epilepsy.*
2. Iselin, H. *Detoxication of the Tuberculous Focus by Roentgen Irradiation. (Conclusion.)*
3. Plehn, A. *Some Unusual Cases of Diseases of the Hematopoietic Organs.*
4. Hoffmann, E. *Acute Syphilitic Nephritis in the Early Period.*
5. Schöne, C. *The Demonstration of Diphtheria Antitoxin in the Blood Serum of Patients Treated Therewith and the Question of the Dosage of Curative Serum.*
6. Schmidt, H. *Capillary Analytic Determinations of the Free Hydrochloric in the Gastric Juice.*
7. Pietrulla, G. *Acitrin.*
8. Hausmann, T. *The Demonstration of Urobilin by Means of Copper Sulphate.*
9. Nordmann, O. *Resection of the Thoracic Wall with Meltzer's Insufflation.*
10. Schanz, F. *Changes and Injuries of the Eye from Light.*
11. Schilling, R. *The Shading of the Singing Tone.*
12. Haller. *Extirpation of the Tonsils, Its Dangers and Their Prevention.*
13. *Zitronblatt, A. *Cases and Histogenesis of Adenoma of the Navel.*

14. BRÜCKNER. *The Question of the Practical Significance of Blood-Pressure Measurements in Diphtheria.*
15. ZIEMANN, H. *The Artificial Cultivation (in Vitro) of the Tertian Malarial Parasite.*
16. MELCHIOR, E. *Dieffenbach as a Clinician.*
17. *STERNBERG, W. *The Human Aquarium.*

13. Only four cases of adenoma of the navel have ever been reported in the literature. Zitronblatt considers that embryologic and anatomo-pathologic investigations, as well as the clinical course of true adenoma of the navel, permit us to speak of it as an autogenous tumor. Histogenetically it arises from remains of the allantois in the umbilicus.

17. Sternberg reports and describes his investigation of an apparently authentic case of a Frenchman who can drink, retain, and expel at will, and without nausea, 7 liters of water at once. At the same time he can swallow 10 live frogs and 10 live goldfishes and eject them still living. Transillumination showed the animals swimming about in his stomach. [R. M. G.]

Obituary.

JOHN WARREN WILLIS, M.D.

DR. JOHN WARREN WILLIS, who died of pneumonia on March 1 in Waltham, Mass, was born at Belchertown, Mass., on May 2, 1832. He obtained his preliminary education at the Bridgewater (Mass.) Normal School, and received the degree of M.D. from the Harvard Medical School in 1861. After serving for a time as interne at the Deer Island Hospital, he settled at Waltham, where he continued active in the practice of his profession for fifty years, until his retirement in 1912. He was a member of the local school committee and board of aldermen. He was a founder of the Waltham Hospital and a surgeon on its staff. He served for many years as city physician. He was also a founder of the Waltham Nurses' Training School, and at the time of his death was one of its trustees. He was a member of the American Medical Association and of the Waltham Medical Club. He was a Fellow of The Massachusetts Medical Society, and served for 20 years as treasurer of the Middlesex South District Medical Society. He is survived by his brother and by his two sons, all of them also physicians.

Dr. Willis was beloved alike by his patients and by his associates, and the loss of his unselfish, manly personality is a grievous one to the community which he had so long and well served.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 22, 1913.

LOVERING, P. A., medical director. Detached from Naval Hospital, Mare Island, Cal., and ordered to Washington, D. C., and to await orders.

DAVIS, R. G., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Naval Proving Ground, Indian Head, Md.

HUFF, E. P., passed assistant surgeon. Detached from marine detachment on *Prairie*, to *Florida*.

CRANDALL, J. W., acting assistant dental surgeon. Detached from receiving ship, New York, N. Y., and ordered to naval training station, Newport, R. I.

BROWN, J. L., acting assistant dental surgeon. Detached from naval training station, Newport, R. I., and ordered to naval station, Guan.

TOMPKINS, J. A., N.M.R.C., assistant surgeon, Ordered to Navy Yard, New York, N. Y.

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—A meeting of the Worcester District Society will be held on Wednesday, April 9, 1913, at 4 p. m. General subject, "Pediatrics." 1. "Resources in Artificial Feeding of Infants and Some Indications for Their Use," Merrick Lincoln, M.D., Worcester. 2. "Carbohydrate Digestion and Indigestion in Infancy," Fritz B. Talbot, M.D., Boston. 3. "The Spasmophilic Diathesis in Children with Special Reference to Tetany," Timothy J. Foley, M.D., Worcester.

ERNEST L. HUNT, M.D., *Secretary.*

RECENT DEATHS.

DR. JOHN H. DROGE, of Brooklyn, N. Y., died on March 16, at the age of 53 years. He was graduated from Bellevue Hospital Medical College in 1884, and was chief laryngologist to the German Hospital, Brooklyn, of which institution he was one of the founders.

DR. JOHN A. HAYES, who died on March 21 at Somersworth, N. H., was born in 1838. He received the degree of M.D. from Dartmouth in 1862, and throughout the remainder of the Civil War served as surgeon of the Eleventh New Hampshire Volunteer Regiment.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 22, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	17	5
Chicago	—	—	Waltham	4	1
Philadelphia	—	—	Brookline	7	1
St Louis	—	—	Chicopee	9	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	9	2
Buffalo	—	—	North Adams	2	1
Pittsburgh	—	—	Northampton	11	2
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	5	2
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	—	—
Boston	280	57	Westfield	10	4
Worcester	62	12	Peabody	—	—
Fall River	47	21	Melrose	5	1
Lowell	34	8	Woburn	5	1
Cambridge	30	3	Newburyport	2	—
New Bedford	37	11	Gardner	—	—
Lynn	32	4	Marlboro	—	—
Springfield	41	13	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	22	6	Adams	4	3
Holyoke	17	6	Framingham	—	—
Brockton	16	7	Weymouth	—	—
Malden	—	—	Watertown	3	—
Haverhill	15	4	Southbridge	3	—
Salem	8	1	Plymouth	—	—
Newton	9	4	Webster	4	2
Fitchburg	18	3	Methuen	—	—
Taunton	15	7	Wakefield	—	—
Everett	4	—	Arlington	2	—
Quincy	—	—	Greenfield	1	—
Chelsea	19	6	Winthrop	—	—

Address.

THE CONDUCT OF LABOR WITHOUT VAGINAL EXAMINATIONS.*

BY CHARLES M. GREEN, A.B., M.D., BOSTON,

Professor of Obstetrics and Gynæcology in Harvard University.

It is generally believed, I suppose, by those who are well trained in the science and art of obstetrics that it is good for a parturient woman, if she can be delivered without vaginal examination; yet, I also suppose it is true that only a very small minority of even normal deliveries takes place without more or less digital invasion of the genital tract. Indeed, it is probably true that in the great majority of cases the first thing the physician does on seeing a woman in labor is to make a vaginal examination to ascertain the presentation and position, and to determine how far labor has progressed. It may truly be said that in no other way can it be definitely known whether or not the cervix is effaced and to what extent the uterine mouth is dilated; but information on these points is not always essential, although perhaps oftentimes convenient for the physician. As for the diagnosis of presentation and position, it should generally be possible to determine these data in other ways. But here it may pertinently be inquired what objections can fairly be made to occasional vaginal examinations during the course of a normal case of labor for purposes of diagnosis and observation. If I make a thesis that vaginal examination should never be practised except to ascertain conditions that can be determined in no other way, it is my duty to defend the thesis and clearly to state the valid objections to routine vaginal examinations, the conditions which would warrant them or make them necessary, and the expedients by which without vaginal examinations all necessary information may generally be obtained: to this duty I will now devote myself.

The valid objections to routine vaginal examinations, even when skilfully and aseptically made, are two: first, they are generally distasteful and even painful to the parturient woman, especially so to the modest, timid, and oftentimes supersensitive primipara; this objection is of relatively minor importance, and would disappear in the face of a necessary indication for pelvic exploration; but in the absence of such indication no argument is needed to show that vaginal examination should not be insisted on. Moreover, it is a familiar experience that such examinations often lead to no satisfactory result in the first stage of primiparous labor, particularly in the resisting, hyperæsthetic young woman. If the presenting part is high, it is impossible to palpate it satisfactorily without the introduction of two fingers to the great discomfort of the patient; and when high vaginal palpation is really necessary, anæsthesia is often essential.

The second objection is, of course, the ever-present possibility of infecting the patient from without. Doubtless we shall all agree that in the work of the expert, trained in the rigid technique of modern surgical asepsis, the possibility of introducing infection from without is remote; but in what proportion are the trained experts to the great mass of physicians who do obstetric practice? Moreover, even the expert obstetrician and the well-trained nurse are human, and all human effort is liable to error. The obstetrician may inadvertently and unconsciously break his asepsis, or with his sterile glove he may introduce facultative organisms by contact with the folds of the external genitalia imperfectly cleansed by the trained nurse. This being true, what are the possibilities of infection by the midwife, and by the general practitioner who lays no claim to expert training!

But aside from the possibilities of exogenous infection, let us consider the possibilities of infections from within or the autogenous infections. And here we will not dwell upon those forms of endogenous origin wherein bacteria are borne to the pelvic organs by the blood or lymph streams from other foci, from distant ports of entry, such as the tonsil or the breast, nor again upon those autoinfections of the genital tract from contiguous foci, such as may exist in the appendix or Fallopian tube: true endogenous infection has no place in our present thesis. But what are the possibilities of infection by the dissemination in vaginal examinations, through the instrumentality of the even sterile glove, of bacteria already in the vagina at the beginning of labor? The question as to whether apparently healthy women under the common conditions of life harbor pyogenic organisms in their vaginæ has been the subject of much investigation by noted obstetricians and bacteriologists, and has been the basis of much polemic discussion. While as yet there is no general agreement on this subject, the results of recent investigation seem to show that almost every known organism, including the streptococcus and the staphylococcus, are to be found in the vaginæ of from 40% to 75% of the cases examined in the latter weeks of pregnancy. These organisms may find their way into the vagina from the vulva, they may enter from bathing in impure water, they may be communicated by cystitic urine, they may be introduced by the patient's fingers from recent contact with infectious discharges. While the normal vaginal secretion, small in amount, acid, containing no mucus, shows only the harmless, probably even beneficent, bacillus vaginæ, pathologic discharges contain numerous pathogenic organisms. It is also well known that pathogenic organisms other than the gonococcus are introduced by coitus practised by certain classes in every community not only in late pregnancy, but even during labor. If these facts are true, it may pertinently be inquired why almost every

* An address before the Buffalo Academy of Medicine, February 18, 1913.

woman is not the victim of autoinfection during labor; the question might be asked in reply, why do not the streptococcus, the pneumococcus, the Klebs-Loeffler, and the tubercle bacillus, lying dormant in so many noses and mouths, invariably result in their specific clinical possibilities? In the vagina very probably the lactic acid product of the bacillus vaginæ is fatal to most bacterial life except that of the gonococcus provided it is always normally present in sufficient amount and there is sufficient time for its successful function. Probably in the vagina, as in the mouth, the organisms lead a saprophytic existence until favoring conditions and depressed resistance invite their virulence. It is also a credible theory that during labor the descending fœtus, liquor amnii, placenta, and blood sweep out large numbers of organisms. This subject is admirably traversed by De Lee in his excellent text-book on obstetrics recently published, and he points out that "the practical lesson to be learned from these investigations (of the vaginal flora) is that the accoucheur should studiously and conscientiously avoid those conditions which render these bacteria virulent and invasive, *and which carry them to regions of the parturient canal where they may unfold their latent powers.*" Is it not clear that in making the vaginal examination the fingers are likely to carry organisms from the lower vagina to the cervical glands, to the uterus, and doubtless to numerous rifts in the cervical mucosa? And is it not true that unless made with great gentleness digital examination may open fresh ports of entry in the softened mucosa of the vagina for the entrance of infecting organisms?

If it may be assumed that I have thus far successfully defended my thesis, at least until such time as my statements are disproved by further investigation, it remains for me to declare in what ways the obstetric diagnosis may be made, if not by vaginal examination, and how the normal delivery may be conducted intelligently without digital invasion of the genital tract. But before entering upon this part of my subject I would like to point out that in my opinion, if full justice is to be done to woman in labor, she should be under the care and observation of her obstetrician from the early months of pregnancy, not only to insure proper hygiene and the alleviation or removal of minor ailments, to promote the best possible functional activity of the eliminative, digestive, and circulatory organs and to train the young gravida for the greatest physical ordeal of her life, but also to permit the observation of the growing fœtus and the determination of its proportionate relation to the pelvis through which it is later expected to pass. As I have already fully expressed my views on the care and observation of pregnant women before the Boston Society for Medical Improvement in 1891,* and more recently in the annual address before the Obstetric and Pediatric Section of the Ohio State Medical Association in 1911,† I will not now further allude to this important subject except to say that early in her pregnancy the young primigravida should be subjected to a full and complete physical examination. Not infrequently a bimanual examination is desired to determine whether pregnancy exists, in order that definite plans may be made for the future and for other reasons. Even if pregnancy is taken for granted on presumptive evidence, it is important to know reasonably early whether there is any abnormality of the soft parts which may interfere with normal labor; if we hope to conduct the labor without vaginal examinations, we must know beforehand whether any impediment exists in order to deal with it intelligently at the proper time. Thickness and rigidity of the hymen, vulval cicatrices consequent on ulcerative processes in childhood, vaginal and uterine atresias and septa, uterine displacements with possible incarceration, the presence of uterine myomata or ovarian cysts, immobility of the coccyx, or bony tumors of the pelvis should all be recognized in the early months. Then, too, the pelvis should be carefully measured, at least externally; if these measurements are essentially normal, the gravida may be spared the discomfort of internal pelvimetry until near the end of pregnancy; and even then it may be omitted, if the presenting head becomes well engaged or descends into the pelvis. It is desirable, however, to measure the distance between the tuberosities of the ischia and perhaps later between the ligamentum arcuatum and the sacro-coccygeal articulation, because pelves are sometimes contracted at the outlet even though the brim is normal. It is, of course, needless to point out that the untried pelvis of every primigravida should be carefully measured before the advent of labor; if the pelvis is found to be normal, all apprehension regarding that important factor of parturition is dispelled; and if in any degree abnormal, a progressive study of the size and position of the growing fœtus will enable the obstetrician to determine the degree of disproportion between passenger and passage, and to decide upon his further course of procedure, —whether he may expect to deliver through the pelvis by forceps or version, whether he will induce labor prematurely, or whether he will make the necessary preparations for an elective Cæsarean section. Lest it should be thought by some that the importance of this routine study of primigravidæ, and indeed of multigravidæ with a pathological obstetric history, is the academic dictum of a teacher, and that its application in private and hospital practice is a chimerical fancy, I would like to say that for years I have declined to take charge of obstetric cases unless the gravida is under my observation from early pregnancy, and I have found no difficulty in persuading my own clientèle of the desirability of such a course. Even in my hospital more and more women have year by year been led to make early application for pregnancy care and obser-

* BOSTON MEDICAL AND SURGICAL JOURNAL, February 25, 1892.

† Ohio State Medical Journal, August 15, 1911.

vation, until finally a clinic has been established, with a special staff, to carry on this work for hospital cases and out-patients alike, and the same advantages are extended to the poor as to the private patient. Under such a system the worst cases an obstetrician has to face are in private consultation practice, and in hospital emergency cases which enter after hours of fruitless pathological labor.

After a woman has demonstrated her parturient fitness by a normal first labor, subsequent pelvimetry is of course unnecessary, and aside from general supervision of a multigravida's health and functional wellbeing the obstetrician has only to observe the development of the fœtus and determine its position and presentation before the advent of labor; of course he should discover any relative disproportion occasioned by a considerable increase in the size of the baby. It is a well known fact that the external obstetric examination is more difficult and much less likely to give satisfactory results when practised during active labor than when executed beforehand. It is my own custom to make this external examination of the fœtus as early as the end of the seventh month. Subsequent monthly examinations reveal progressive fœtal growth, and sometimes also changes in position and presentation,—from right or left position to its opposite, and sometimes from breech to head or *vice versa*. A few days before the calculated date of labor a final examination is made, and after this no change in position or presentation is to be expected; in 97% to 98% of all cases at full term the head presents, and in normal cases is already engaged or descended into the pelvis in the latter days of pregnancy; it is only in cases of relative disproportion or in the relaxed condition of uterus and abdominal wall sometimes observed in multiparity, that the head is likely to change its position in late pregnancy. Still it is not generally difficult, at the first visit to a woman in the beginning of labor, to verify or disprove the last previous examination.

The external examination is not equally easy of satisfactory execution in all women. In some the abdominal wall is very fat, in some very tense, in others unduly hyperæsthetic. It is for the reason of these possible conditions that I am accustomed to examine the abdomen as early as the seventh month; it is not so difficult to detect changes in the later months, if the earlier positions and presentations are known. Then, too, if when seen in the early months the gravida is found to be too fat, it is usually possible to reduce this bane of easy labor, as well as of satisfactory examination, by intelligent regulation of diet and exercise. The abdominal wall is not usually so tense as to make palpation unsatisfactory until the later months, and troublesome tension may be much diminished by oil inunction after the seventh month. The hyperæsthetic muscular spasm of the timid, apprehensive young primigravida may be generally removed by interesting conversational diversion of her mind.

What means have we at our service for the external examination? First of all, our eyes. Inspection naturally comes first in most of our activities. By inspection, aside from the appearance of the breasts, nipples, and areolæ, a distended bladder, the status of the umbilicus, the presence of pigmentations, and the striæ, new or old, indicative of tears in the true skin, we note the shape and size of the abdominal tumor. A large size of the tumor is at most only suggestive; it may mean a large baby, it may mean hydramnios with the usually small, mobile baby, it may mean twins; subsequent examination must endeavor to differentiate between these possibilities. It should not mean a complicating ovarian tumor, for this should have been discovered at earlier examinations. The shape of the pregnant abdomen gives far more information. The normal shape is ovoid, in head presentations with the smaller end at the pelvic brim; if the lower pole is broad, it would suggest a breech presentation, to be determined later; a possible low attachment of the placenta would also be thought of. If the ovoid is distorted and irregular, it shows that the long axis of the fœtus intersects the long axis of the uterus, and, therefore, that an oblique or transverse presentation is highly probable; the possibility of a hitherto undiscovered, rapidly grown, intra-mural fibroid should not be overlooked. Finally the movements of the baby may usually be seen, and often point strongly to the fœtal position. Many a time while waiting for a student to practise auscultation I have watched the abdomen, and have been able to map out the fœtus by sight, although, of course, diagnosis by this means should be subsequently confirmed.

Our second and most useful means of external examination is that afforded by the sense of touch. By palpation of the pregnant abdomen we may expect to determine whether there is a normal amount of liquor amnii, or an abnormal hydramnios perhaps suspected after inspection. If the membranes are known to have ruptured, the presence of a normal amount of liquor is good evidence that the brim is occluded with a well-flexed presenting head, the only fœtal part which serves as a good ball-valve. If, on the other hand, the membranes have already ruptured and the uterus is found to contain but little liquor, it is fair to presume that the brim is not well occluded, and, therefore, that there is an abnormal presentation, such as a shoulder, or an undesirable presentation, such as face, brow, or breech. And if the examination is made on a woman who has been long in labor with ruptured membranes and dry uterus, we may usually palpate a high contraction ring. By palpation we may appreciate the size and mobility of the fœtus, and with practice be able to form a sufficiently accurate estimate of its weight. We may be able to confirm a suspicion of multiple pregnancy, although this is by no means

always possible. We may also detect the presence of a complicating neoplasm, and locate the placenta. But the most important purpose of palpation is to determine the fœtal position, presentation, and its relative size to the pelvis. It is unnecessary for me to describe the technique of this procedure; it is taught in all good schools and obstetric clinics. But I would like to insist on its value as an expedient for making vaginal examinations unnecessary. Save in a small proportion of exceptional cases we should be able to determine the presence of a head in the uterine fundus, and thus be able to recognize a breech presentation when it would be impossible by vaginal examination without anæsthesia to reach the high, unmoulded breech in early labor. The usually easy detection of the two large parts of the fœtus in a line at angle with the long axis of the uterus must generally mean a shoulder presentation, and this method of diagnosis is available long before it would be possible to palpate the shoulder by vaginal touch, even if the cervix were sufficiently patent to permit it. Whether the fœtus lies in right or left position is usually determined by touch without difficulty; but of far greater value is the study afforded by palpation of the relation of the head to the pelvis. That the head presents, and whether it is engaged or not, is readily recognized by what is known as the Pawlik grip, or, as sometimes called, by the third manœuvre. And if the head is engaged, by the fourth manœuvre, performed with both hands, the observer facing the woman's feet, the degree of flexion, the position, and the extent of descent into the pelvis are generally determined without difficulty. It is also possible to diagnosticate the unflexed or extended head by the third and fourth manœuvres by palpation of the occiput with the deep sulcus behind it, and of the sinciput or chin. To save time it is my usual custom to practise the Pawlik grip first, and thus often determine the position and engagement of the head without resort to palpation of the fundus and lateral surfaces of the uterus which is necessary in doubtful cases. And if the head is not easily thus grasped, it will generally be found that it has already descended, perhaps even to the pelvic floor.

There remains one other sense of contributory value in the external examination, the sense of hearing. While auscultation detects the bruit of the blood stream through the enlarged uterine arteries, and sometimes the musical note of the funic souffle, its chief value lies in the detection of the rate and rhythm of the fœtal heart sounds and in the location of their maximum intensity. For purposes of diagnosis of fœtal presentation and position the discovery of the locus of this maximum intensity of sound is of value in confirming the opinion reached by palpation, and sometimes it leads to the detection of error when palpation has been too hastily and perfunctorily performed. It is known that with the single exception of face presentations the fœtal heartbeat is heard loudest and most distinctly over the baby's back; and since, except when the head is extended, the back lies or can be made to lie in snug apposition to the uterine wall, it is easy to determine by auscultation in which of the four quadrants the fœtal back is disposed, and thus to confirm the results of palpation. In face and brow presentations the heart is heard loudest over the fœtal abdomen and small parts, because the extended head prevents the apposition of the back to the uterine wall, and forces the baby's abdominal wall to the opposite side. As it is known that in head presentations the area of loudest intensity of heart sounds is in one of the two lower abdominal quadrants, it naturally follows that when this area is above the maternal umbilicus, it points to the presentation of an undescended breech. In teaching it is my custom to require that the presentation and position should first be determined by inspection and palpation, and that then the small area should be selected over which the fœtal heart should be heard; if with a living fœtus the heart is not heard over the designated area, then the findings by palpation must be verified, and the discrepancies between the methods of examination must be explained.

Experience has taught me that if the several expedients at our command are intelligently and patiently employed, the external examination, especially if made at suitable intervals during the latter months of pregnancy, must almost always result in an accurate knowledge of presentation and position; further, that if in primigravidæ pelvimetry and vaginal exploration have been made at the proper time, the obstetrician should know at the incidence of labor the exact conditions with which he will have to deal as far as the fœtal passenger and the maternal passage are concerned; of the probable behavior of the maternal propelling power he can have no knowledge, although he may make correct prediction from his acquaintance with the parturient's nervous stability and muscular tone, and with the history of the multipara's previous labors. Under these circumstances why should any vaginal examinations be made as long as under normal conditions labor progresses normally and terminates within reasonably normal limits of time? Is it not true that no vaginal examination should be made in the absence of definite indications? Of course pathological conditions existing before, or arising during labor call for appropriate examination and intervention. Let me quote a case illustrating the conduct of a normal labor without a single vaginal examination:

CASE 1. A secundigravida of 30 years, whom I had delivered of her first child eighteen months before, after a tedious but normal labor, took in her second labor at 11 p. m. I visited her two hours later. I had supervised her pregnancy, knew that she had a pelvis adequate to pass the average sized baby I had palpated, and knew that the head presented in O. D. P. position. Examination a few

days before had shown the head to be well engaged, and palpation on my arrival showed me that the head had descended well flexed to the pelvic floor. The membranes had ruptured three-quarters of an hour after the incidence of recognized labor; but in view of the well flexed, descended head, I had no apprehension of a prolapsed cord; moreover, the fœtal heart was heard to beat normally, in the right lower quadrant posteriorly. The patient was evidently in good labor, and I knew all about her that could be known, except the condition of the cervix. I saw no reason to make a vaginal examination, but seated in an adjoining room, I listened, while the nurse made her final preparations. After a rather brief but untimed period I heard a change in the patient's tones, and noticed that she was straining; it was very obvious that she was in her second stage. I then prepared myself with sterile gown and gloves, while the nurse watched the vulva. Soon the perineum bulged during pains, the vulva gaped, and the scalp came into view. In order to assure myself as to whether the occiput had rotated to the pubic arch, as it normally should do, with one finger I palpated the visible part of the head and found the small fontanel under the arch; I did not enter the vagina. The labor terminated in five hours after the initial pains. The puerperal temperature never rose above 99° F.

It may now be profitable to consider the conditions which would warrant or necessitate vaginal examinations during labor. Of course, as intimated above, pathological conditions usually call for operative procedure, from low forceps to abdominal section. Most of these procedures necessitate vaginal invasion; but every vaginal examination shadows the prognosis, if Cæsarean section is finally decided on. Ante-partum hæmorrhage, pregnancy toxæmias with convulsions, compound or other abnormal presentations, minor relative disproportion between pelvis and fœtal head, complicating neoplasms, prolapse of the funis, and evidence of impending fœtal asphyxia, surely necessitate treatment involving invasion of the vagina. But in the absence of these more or less grave complications, the only indications for vaginal examination in cases which at the beginning of parturition bid fair to be normal would seem to me to be only the prolongation of labor beyond reasonably normal limits of time, that is, ineffectiveness of the maternal powers, and suspected prolapse of the cord or a fœtal extremity. The following history will illustrate what might be called the time-limit indication for examining by vagina:

CASE 2. The patient whose history as a secundipara was given above, now 36 years of age, in excellent general health, began to have the pains of her third labor at 4 a. m. The uterine contractions ceased to be regular two hours later; but they continued irregularly until 6 p. m., when true labor evidently began. My visit was at 9.15 p. m., when I found by external examination that the position of the presenting head, since my last previous palpation a few days before, had changed from O. D. P. to O. L. A., the head now being well engaged. The child was thought to be a little larger than that of the second labor, but still not above average size. The pains continued regular, but rather weak. At 4.30 a.m. of the next day the woman had been in true labor for ten and one-half hours, more than twice as long as in her second labor, although the fœtal position was more favorable, and the fœtus not materially larger. As the patient was now rather discouraged, it seemed best to me to examine by vagina to see if there were any cause, such as cervical rigidity, for the protraction of labor; the cervix was thus found to be soft and from one-half to two-thirds dilated. Two hours elapsed, and still there was no evidence of progress, so I made a second vaginal examination; the os uteri was not yet fully dilated, and the bag of waters was still unbroken. After still one other hour the membranes suddenly ruptured, and rapid delivery of a seven-pound child followed in fifteen minutes. The whole labor covered fourteen hours, nearly three times tne length of the last previous one, and the baby weighed only five ounces more. It seemed obvious that the protraction of labor was due to a poorer quality of labor pains, rather than to any anomaly of the cervix, and my two vaginal examinations gave no information except as to the extent of dilatation, which was more tardy than in the previous labor.

In some cases, then, of tardy labor vaginal exploration is legitimate and necessary, for intelligent treatment must depend in great measure on the condition of the soft parts and the degree of cervical expansion. If the labor pains are inefficient with a cervix but slightly dilated, resting the patient with anodyne treatment will often restore the length, rhythm, and normal quality of the contractions; sometimes the use of hydrostatic bags is indicated. And when inertia supervenes with the os uteri almost dilated, it is generally best to terminate the labor with forceps after manual dilatation. Sometimes unusual delay in labor may be due to a loss of flexion of the head after it has passed the brim, and vaginal invasion is necessary to correct this hindrance to normal mechanism. Then, again, in posterior positions of the occiput, the pelvic floor has in some cases so far lost its elastic resistance in multiparity that anterior rotation fails to take place, and the hand must be used to assist this rotation.

My conclusion is, then, that the common custom of making frequent vaginal examinations during labor is a bad one and deserves to be classed as "meddlesome." These examinations disturb and often hurt the patient, they add to the risks of infection, they give no information that cannot generally be obtained by external examination, except as to the condition of the cervix, and the possibility of prolapse of the cord or a fœtal extremity. Except in hospitals, to which naturally many abnormal cases are sent, the great majority of cases are normal as far as the fœtal passenger and the maternal passage are concerned, and when delay occurs it is much more generally due to defective pains. Frequent vaginal examinations do not remedy this difficulty, and the obstetrician's efforts can be more profitably employed than in making them. I have

already intimated that much can be done during pregnancy in standardizing the woman's nervous equilibrium and muscular tone. Cannot something also be done during labor? Especially in the long first stage of most primiparæ it is worth while to give attention to two important facts: first, it is best that the parturient should be out of bed until the first stage is well advanced; second, it is best that she should be occupied and her mind diverted with light duties or amusements. Many a parturient woman will bear her first-stage pains with comparative equanimity and without loss of her *morale*, if she gives her attention to household duties, writes notes, or plays games of cards. Moreover, in her usually long first stage a primipara should be fed with easily assimilable liquid food; no one is brave when hungry; no general, if he can help it, sends unfed troops into battle. As the first stage approaches its end the fact is very often shown by blood-streaked mucous discharge, by nausea and vomiting, and by rupture of the membranes. Soon after it will often be observed that the parturient instinctively begins to bear down, to strain; and the profuse secretions, gaping vulva, and relaxation of the anus are good indications of progress. Sometimes the second stage drags because the laboring woman fails to strain and does not make proper use of the supplementary force of her abdominal muscles. This is the time for the obstetrician to take active charge, to teach the young primipara to make full use of her muscular powers, to encourage, to coach, even to command. Even well-trained nurses generally fail to make their patients work properly, because, I suppose, women more naturally obey a man than another woman. A properly coached second stage rarely exceeds normal limits in a well-prepared parturient in the absence of pelvic and fœtal disproportion or fœtal malpresentation. But well-trained nurses can be taught keenly to watch the clinical phænomena of labor, and to judge quite accurately of its progress; so that the constant presence of the obstetrician is by no means necessary during the long first stage, especially if he is easily and quickly accessible by telephone, as may be illustrated by the following case:

CASE 3. A quadrigravida of 26, whom I had attended in her former labors, took in labor at 6 a. m. I had last seen her three days before, and by external examination had made out a head presentation, well engaged in O. D. P. position. I did not visit the patient, but gave careful instructions to the nurse as to my plans and whereabouts for the day. I did all my morning work, but in the afternoon remained at home in readiness, using my time at my writing desk, and receiving occasional reports from the nurse. About 9 p. m. the nurse informed me that the second stage was at hand, and I saw the patient ten minutes later. As everything needed was in readiness, I had only to prepare myself, and I received the baby twenty minutes later. There was no vaginal examination, and the highest puerperal temperature was 98.6° F.

Medical students should be trained to make vaginal examinations, that they may make them with accuracy when occasion requires. The student should also be well trained in the external examination. He should then be instructed never to make a vaginal examination without a definitely necessary indication; and he should be led clearly to appreciate the fact that the infrequency with which he explores the vagina in normal labor affords an excellent criterion both of his skill in the external examination and of his clinical knowledge and acumen in the practice of obstetrics.

Original Articles.

DIABETES IN INFANCY AND CHILDHOOD.

BY JOHN LOVETT MORSE, A. M., M. D., BOSTON.

Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician at the Children's Hospital and at the Infants' Hospital, Boston.

KÜLZ, in the first complete text-book article on this subject, collected all the cases reported before 1878. He summarized 111 cases and gave references to 17 other cases published since his summary was made. The ages of these patients varied between fourteen days and fifteen years; 45 of them were boys and 57 girls; the sex was not given in the others. Fifty-seven were known to have died and 6 were said to have recovered. It is impossible to tell from the data given, however, whether the "cure" was permanent or not.

Curt Stern, in 1889, collected 117 cases in children under 16 years, 21 of which were included in Külz' series. Seven were under two years. Thirty-one of these children were boys and forty-seven girls; the sex was not given in the others. The results were given in 77 cases. Fifty-two were dead, 4 not improved, 7 improved and 14 were said to have recovered entirely. Stern says, however, that the proof of recovery is satisfactory in but one.

Saundby, in 1891, reported 159 fatal cases under 15 years, 80 of whom were boys and 79 girls.

Wegeli, writing in 1896, collected 108 cases, not included in the series of Külz and Stern. Forty-seven of these children were boys and 48 girls; the sex was not given in the others. Sixty-nine, or 64%, were fatal. Recovery was claimed in 15. The period of observation was less than three months in 9 of these, however. The other 6 were well after periods of from two and one-half to fifteen years. He also reported 28 new cases, all of whom, in which the data were complete, had died.

Bogoras, in 1899, collected 34 cases from the literature since Wegeli's paper and added 20 of his own. Twenty of these were boys and 26 girls, the sex not being given in the others.

In looking over the literature of the subject I have incidentally run across 27 other cases, 19 in males and 8 in females. Sixteen had died, 10 were still under observation and 2 were said to have recovered.

I have also seen 19 cases myself, 11 in boys and 8 in girls.

It is very evident from these figures that diabetes does occur in childhood and, as only a small proportion of the cases are reported, probably more often than is ordinarily supposed. They show nothing, however, as to the relative frequency of diabetes in childhood and in later life. The following figures show something as to this point. There were 321 deaths from diabetes in children under 10 years in England and Wales in 1851-1870, in a total of 11,042 of all ages, or not quite 3% (Roberts). Heinrich Stern reports 24 deaths, or 1.24%, from diabetes under 10 years in a total of 1867 in New York City (Cotton), while in Chicago, in a total of 418 in four years, 15, or 3.5%, were under 10 years (Cotton). Pavy had 8 below 10 years, in 1,360 cases; Seegen, 4 below 10 years in 800; Schmitz, 5 in 600; Mayer, 1 in 380; Griesinger, 6 in 225; Prout, 1 in 700; von Noorden, 50 in 2,000. This gives a total of 435 in 19,392, or 2.2%.

The general impression is that the frequency of diabetes increases directly with age. The analysis of these figures bears out this impression, 197 being under 5 years and 325 between 5 and 10 years.

A summary of the series of Wegeli, Roberts, Saundby, Leroux, Stern, Griesinger, Bogoras, Morse and Külz shows that, taking childhood as a whole, the incidence of the disease is essentially the same in both sexes, 491 in boys and 498 in girls. Judging from these figures, it occurs more frequently in boys than in girls during the first five years, 93 to 69, and with equal frequency from 5 to 10 years, 150 to 152.

A possible explanation for the lesser incidence of diabetes in childhood may be the somewhat greater sugar capacity at this age than in adult life, the glucose capacity in children from 3 to 5 years being, according to Wilcox, 30 grams or over, and from 5 to 10 years, 50 grams or over, while in adults it lies between 100 and 150 grams. This gives a slightly greater capacity per unit of weight in childhood than in adult life. The child is, moreover, better equipped for sugar digestion than the adult, having more liver substance in proportion to bulk, the relation at 4 years being 4.4% and in the adult 2.7%.

Etiology. The etiology of diabetes in childhood is essentially the same as in later life. The predisposition of the Jewish race to the disease is, however, not evident in early childhood. Heredity is an important factor, but perhaps less so than in later life. It may be either direct or indirect, a neuropathic family history being very common. There was a history of diabetes in the family of 6, or 31%, of my own patients. Familial juvenile diabetes is relatively frequent, heredity playing a very important part in this type. In this form all the children in the family are attacked in more than 50% of the cases, 7 or 8 children being affected in some instances. Lion and Moreau collected 30 instances of this type in 1909. One of my cases was of this type, three children of six in the family having the disease. It is usually stated that trauma is not an important factor in childhood. The recent literature, however, hardly bears this out; witness the cases of Lomax, Thompson, Abt and Strousse, and Lloyd. It is probable that the long-continued excessive consumption of sugar may play a part in the production of the disease, as is shown by Wilcox in his analysis of Holt's cases. Such a history was present in 6 of my own 19 cases.

Symptomatology. The symptoms in children are, of course, in the main the same as in the adult—polyuria, polydypsia, emaciation and constipation. Polyphagia is, perhaps, more common. Symptoms of gastric disturbance are said to be more common in the child (Stern). Disturbances of the skin, eye and nervous system are less frequent. Marked changes in the disposition are, however, very common, the child often becoming quiet, morose and sad. Eneuresis is often the first symptom to call attention to the trouble, while in others the first thing noticed is the presence of flecks of sugar on the clothing, vessel or floor. Another early and suspicious symptom is irritation of the external genitals.

Polyuria was the first symptom noted in 5 of my 17 patients over 2 years of age. Eneuresis was the first symptom noted in 4, excessive thirst in 3, emaciation in 3, quietness in 1 and disturbance of vision in another. Polyuria was noticed in all. Polydypsia was, however, noted in but 13. Emaciation was also noted in 13. Only 9 were constipated. A large appetite was noted in 6, while loss of appetite was noted in 3. Eneuresis was present in 5 and irritation and itching of the external genitals in 4. Itching of the skin was mentioned in but one case. Three were nervous, 2 were quiet, 1 suffered from headaches and 1 had trouble with vision. It is probable that many of these symptoms occurred more frequently than is shown by these figures, because most of the patients were seen but once in consultation, or at most a few times, and, therefore, only those symptoms which had developed up to that time were mentioned.

The onset is usually described as acute in childhood. It is, however, probably less often so than is ordinarily supposed, because what is taken for the onset is undoubtedly not infrequently the change from the mild to the severe type of the disease. How acute the onset may be is shown by a case of Schmitz, in a child of four years, in whom four days after a negative examination of the urine for another purpose, nervousness, dryness of the tongue, headache and severe thirst appeared, and 60 grams of

sugar per litre were found in the urine. It was formerly supposed that almost all of the cases in childhood were of the severe type, but more recent studies have shown that the two types are about equally common in the beginning, with a greater tendency for the mild to change to the severe than in later life. About two-thirds of my own cases were, however, of the severe type.

It is very difficult to make any definite statements as to the duration of the disease in childhood, because of the difficulty in determining the time of the onset in the mild cases and, in those which are apparently severe from the first, whether they were or were not primarily of the mild type. Another difficulty is that some of those apparently cured may have relapsed and ended fatally later. Von Noorden, whose personal experience has probably been larger than that of anyone else, states that the average duration in his cases, in all of whom the disease developed before the seventh year, in which the disease was detected after its development into the severe type, was one and one-half to two years. Those who came under observation in the stage of mild glycosuria lived from three to six years. Death may occur in as short a time as eight days (Rist). The duration in 12 of my own 17 cases over two years old was 6 weeks, 2 months, 4 months, 5 months, 7 months, 7 months, 10 months, 11 months, 11 months, 12 months, 21 months and 28 months, respectively. Three are still alive, 2 months, 11 months and 28 months respectively, after the onset of symptoms. All of these have sugar in the urine. The result is not known in the other two. In general, the usual statement that the younger the child the shorter the course, is true. This was so in my own cases. It is evident from the literature, however, that there are many exceptions to this rule. Death usually occurs in coma.

Prognosis. The prognosis in childhood is almost uniformly bad. Von Noorden's statement that "with few exceptions diabetes in childhood knows no cure, no matter how mild it may appear in the beginning, nor how gradual its development in the first months or even years," is unquestionably essentially correct. All series of cases, however, show a certain number of cures. In the vast majority of these cases, however, the children were under observation but a few months after the disappearance of the sugar. The sugar must be absent for a number of years before a cure can be claimed, because of the frequency of periods of latency, which, as in Wilcox' case, may be as long as six months or, as in one of my own cases, nearly a year, and in two others four months.

In many of the older cases, moreover, in which a cure is claimed, the evidence that the disease was really diabetes and not a temporary glycosuria, is unconvincing. There is no doubt that transitory glycosurias occur and completely recover. Some of the so-called "cured" cases of diabetes are undoubtedly of this nature. Another class of cases which has probably been mistaken for true diabetes and, when imperfectly observed, reported as cures, is that in which there is a definite intolerance for large quantities of carbohydrates which exists throughout life and is not progressive in character. Hürter's case, in a boy of ten and one-half years, makes it appear, however, that a cure is possible. In this instance, thirst, hunger, polyuria, emaciation and sleepiness, together with sugar in the urine, developed suddenly after an indiscretion in diet. He came under observation at the end of four weeks, and two weeks later, under a strict diet, the sugar disappeared. Carbohydrates were then gradually added and, although the urine was examined weekly, the sugar did not reappear. At the end of seven months there was no sugar in the urine, even after a single dose of 50 grams of grape sugar. Heiman's case of a boy of 10, who was passing 5700 c.c. of urine, containing 5% of sugar, and five months later was taking 105 grams of bread daily without sugar in the urine, and Gellhorn's, in a boy of 16, who when first seen was passing 6 quarts of urine, containing 408 grams of sugar, and who, four months later, having been sugar free for three months, could take 150 grams of carbohydrates without the appearance of sugar, also point in the same direction.

Diagnosis. Diabetes should be recognized at once in those cases in which the symptoms are typical. It should also be thought of in all cases in which there is gradual failure or a condition of malnutrition which is not otherwise accounted for. Irritation of the external genitals, especially in girls, and the appearance of eneuresis in children previously continent should always suggest it. The finding of sugar in the urine under such circumstances confirms the diagnosis. The finding of sugar in the urine without other symptoms of diabetes does not, however, justify the diagnosis of this disease, because a temporary glycosuria as the result of overstepping the limit of tolerance is not uncommon in childhood. This is especially likely to occur when the indiscretion is accompanied by disturbance of the digestion, as in the following instance:—

CASE 1. Betsy B., 3½ years old, had always been well. She stole and ate a considerable amount of candy, Dec. 22, and had an acute attack of gastric indigestion as the result. She had nearly recovered from this when her mother brought her in, Dec. 27, because of pseudomasturbation. Examination of the urine, in the search for a local cause of irritation, showed that it had a specific gravity of 1030 and contained a large amount of sugar. Careful questioning failed, however, to elicit any symptoms of diabetes.

The urine passed that night, just after supper, had a specific gravity of 1022, but contained no sugar. That passed at midnight, however, after a supper of bread and milk, had a specific gravity of 1034 and contained a trace of sugar. The morning urine had a specific gravity of 1028 and contained no sugar. She was then put on a somewhat restricted diet. She took 159 grammes of carbo-

hydrates, Jan. 2, and passed 24 ounces of urine of a specific gravity of 1024, which contained no sugar, while Feb. 2 she took 196 grammes of carbohydrates and passed 24 ounces of urine, of a specific gravity of 1026, which contained no sugar. She has been perfectly well since then, a period of a year, and the urine, although examined a number of times, has never contained sugar. The carbohydrates have not been limited, except that she has not been allowed to eat candy or to put sugar on her food.

Even the persistent appearance of sugar whenever a definite amount of carbohydrates is overstepped, although this amount is below the usual normal limit, does not necessarily justify a diagnosis of diabetes, as has been shown by von Noorden. What shall we say, moreover, as to cases like these described by Kerley, in which 3% and 3.5% of sugar, respectively, were discovered by accident in the urine of two healthy boys, brothers, four and six years old. These boys were under observation for six years, remained perfectly well and developed normally during this time, although sugar was always present in the urine, the amount never going below 1.5% and 2%, respectively, even on a strict diet.

Diabetes in Infancy. A considerable number of cases of diabetes in infancy have been reported. There are, for example, 13 under one year in the series of Saundby, Külz, C. Stern and Wegeli, while Hagenbach, in 1899, collected 77 cases under one year, and Eaton and Woods collected 11 others, in 1911, besides reporting one of their own. There is nothing to show, however, in the vast majority of these cases, that the sugar was dextrose, not lactose or galactose. Only those in which the sugar is glucose can be regarded as diabetes. The others are merely cases of glycosuria.

The breast-fed infant gets from 11 to 8 grams of lactose per kilo of weight daily during the first year, the amount diminishing progressively with age (Nobécourt). Under normal conditions sugar rarely appears in the urine. If it does, it is in the form of lactose or galactose. Normal infants under one year of age can take single doses of from 3 to 3.5 grams of lactose per kilo of weight, fasting, without the development of glycosuria (Grosz, Nobécourt). Glycosuria is likely to appear, however, if more than this is taken. The assimilation limit is lowest in the new-born. It increases rapidly during the first few days, after which it is practically constant. The assimilation limits vary quite widely, however, in individuals of the same age. The appearance of lactosuria under these conditions is not pathological. Nothmann has, in fact, described the occurrence of glycosuria in premature infants on the breast, that were doing well and showed no signs of intestinal disturbance, the condition persisting for many months. He believes that it is not premonitory of any other condition.

Temporary glycosuria is not uncommon in the acute digestive disturbances of infancy, in which conditions the assimilation limit is not infrequently lowered. If the sugar in the food is lactose, the sugar in the urine is in the form of lactose or galactose. It is probable that nearly all of the cases reported as diabetes in infancy have, in fact, been cases of lactosuria or galactosuria, not of diabetes. It is not difficult to distinguish between them if the possibility of lactosuria is borne in mind and the urine examined for the different varieties of sugar.

Both dextrose and lactose precipitate Fehling's solution on boiling. Dextrose precipitates it immediately, lactose after a longer time. This difference in time is, however, not sufficient to justify any conclusion as to the form of sugar. If a positive test for sugar is obtained with Fehling's solution, the urine should then be boiled for three minutes with an equal amount of a 10% solution of sodium hydrate. Hot Fehling's solution should then be added and the mixture again boiled. A positive reaction then means the presence of lactose.

A number of true cases of diabetes have, however, been reported in infancy in which the urine contained dextrose. Langstein reported a case of chronic internal hydrocephalus in which it was present in amounts varying between 0.1% and 1% from the time the baby was first seen when six months old until its death a few months later, and another case of anencephalus, in which it was found on the seventh day and persisted until the baby's death, at sixteen days, the amount varying from 0.5% to 1%. He reported another case in an infant of eight months, but did not give the result. Heiberg reported a case in a child of fifteen months. The urine contained 8% of sugar, and death resulted in fifteen days. Eaton and Woods reported a case in which the symptoms appeared at six months. The urine contained from 5% to 10% of sugar. The baby died when 23 months old. Bogoras reported a case in which glucose was found in the urine when the baby was fifteen months old. It disappeared after a month and was still absent four months later. I have myself seen one proved case of diabetes in infancy and another which I believe from the symptomatology to have been a case of true diabetes, although the sugar in the urine was not proved in this instance to have been dextrose. The history of these cases was as follows:—

Case 2. Evelyn S. was the only child of healthy parents. She was nursed for six months and then given milk with strained oatmeal, which she took until she was fourteen months old. Beef juice, broth, rice, eggs, toast, crackers, potato and baked apple were then gradually added. She did not, however, get more than two slices of bread and one potato daily. She had never had sugar on her cereals and had never been given sweets. She began to be somewhat constipated when 18 months old and perhaps began to drink a little more water and pass rather more urine at that time. The mother would not have thought of these things, however, if it had not been for what developed later. When

19½ months old she suddenly began to be very thirsty and to pass a great deal of urine. Her mother thought that she drank at least a quart of water daily and said that she passed urine every few minutes. The constipation had increased and she had lost weight very rapidly since then. About ten days after the development of the new symptoms, her mother noticed that the urine made a sugary stain on the floor and on the bedding. She called her physician, who found sugar in the urine. She was seen five days later, when 20 months old.

The physical examination showed that she had lost a large amount of weight. She was moderately pale and the skin of the face was dry, as was the tongue. Nothing else abnormal was detected.

The urine was pale, highly acid, of a specific gravity of 1040 and contained the slightest possible trace of albumin. The urine contained a very large amount of sugar by Fehling's test. The sugar was in the form of glucose. The exact amount was unfortunately not determined. The urine also contained acetone and diacetic acid.

Treatment had no effect upon the condition. She died in coma three days later.

CASE 3. Thomas F., 19 months old, was nursed for two months, since when he had had nothing but condensed milk and an occasional potato. He did not seem quite up to mark Oct. 5, and it was noticed that he was passing more urine than usual. He was then given cows' milk, which he did not, however, take very well. He had an attack of bad breathing the night of Oct. 14, but seemed all right the next morning. The bad breathing recurred the next day and continued up to the time he was seen, in the late afternoon of Oct. 16. He had taken but little food, but had been very thirsty and had passed urine frequently.

The physical examination showed nothing abnormal, except the typical respiration of acid intoxication. A small specimen of urine was found to contain a large amount of sugar. The nature of the sugar was, unfortunately, not determined. He died in coma a few hours later, eleven days after the appearance of the first symptoms, and forty-eight hours after that of the peculiar respiration.

Treatment. The treatment of diabetes in childhood is, of course, the same as in later life, and consists essentially in the regulation of the diet. The general principles are to cut the carbohydrates down as low as is possible without bringing on an acid intoxication and to make up the calories lost in this way by increasing the amount of fat and proteids in the diet. This is no more difficult in children over four or five years old than in adults. In younger children, whose diet is made up to so great an extent of milk and starches, it is difficult to give enough fat and proteids to cover the caloric needs, and in infants, not old enough to eat meat and eggs, almost impossible.

The diet in infancy has to be made up of cream, sugar free milk, white of egg and beef juice. The milk can sometimes be enriched by the addition of precipitated casein. If it is necessary to give more starch, soya bean flour is a very good form to use, in that it contains a larger proportion of proteids than other flours. Eggs, fish, meat and butter may be added to the diet of children just past infancy.

The diet of older children is planned in the same way as that of adults. It is better, as in adults, to give the starch in the form of the common articles of food, such as bread and potato, than in that of any of the gluten preparations, almost all of which are unreliable. Bicarbonate of soda should be given at the beginning of the treatment, in order to avoid the development of acid intoxication, and later, if necessary. The same rule holds in children as in adults, however, that it is wiser to give starch and have a little sugar but no acetone bodies in the urine than to withhold starch and have acetone bodies and no sugar in the urine. Drugs are of no use in the treatment of diabetes in children, except for the alleviation of symptoms. The treatment used in the following instance illustrates the management of these cases in childhood.

CASE 4. Charles W., eleven years old, had had diabetes for a month. He was allowed to eat as much as he wanted of his regular diet but was not allowed to put sugar on his food. He passed that day 560 c.c. of urine of a specific gravity of 1041, which contained 5.9% or 33.6 grams of sugar. It contained no albumin or acetone, and the sediment showed nothing abnormal.

An accurate account of what he ate was then kept. He took 85 grams of carbohydrates on one day and passed 855 c.c. of urine, of a specific gravity of 1018, which contained 1.8%, or 15.3 grams of sugar, but no acetone.

A boy of his age and size needs approximately 1300 calories daily. A diet was then arranged for him which contained the proper number of calories, and the amount of carbohydrates was regulated in order to determine how much he could take without passing sugar in the urine. The diet one day was as follows.

Cereal,	1½ oz.	37.5	8.2 grams
Rice,	1½ oz.	67.5	15. grams
Bread,	1 oz.	75	15 grams
Meat,	6½ oz.	390	—
Eggs,	4	288	—
Butter,	3 oz.	675	—
Tomato,	9 oz.		—
		1533	38.2 grams

He passed 530 c.c. of urine, of a specific gravity of 1010, which contained neither sugar nor acetone. The urine contained acetone the next day, however, although the amount of carbohydrates in the food was the same.

The amount of carbohydrates was, therefore, gradually increased, so that four days later he was taking 76 grams. He passed on that day 470 c.c. of urine, of a specific gravity of 1026, which contained 2.3%, or 10.8 grams of sugar, but no acetone. It was evident that his tolerance for carbohydrates lay somewhere between 38 and 76 grams. A little more experimenting showed that he could take about 55 grams of carbohydrates without the appearance of sugar in the urine and that this amount prevented the formation of the acetone bodies. He was, therefore, kept on a diet containing about 55 grams of carbohydrates and 1300 calories. On this

diet he held his weight and had no symptoms, while the urine contained neither sugar nor acetone bodies.

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BILATERAL SUBCLAVIAN ANEURYSMS.

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OPERATIONS upon aneurysms are probably as old as surgery, but not until arteries were ligated did the operation offer a reasonable chance of success. Since the time of Hunter and Antyllus there has been more or less controversy as to where the ligatures should be placed and, later on, the disposition of the sac has offered a new problem. Finally, the excellent work of Matas has added much to the technic of operations upon these progressive and often serious lesions. In addition to this, the work of many investigators, notably Carrel, upon the surgery of blood vessels in general, has aided materially the surgery of aneurysms. In that aneurysms differ greatly as to site and, hence, accessibility and seriousness, and because the usual underlying cause is primarily a disease of the arterial wall rather than trauma alone, every case is a problem in itself. Some varieties present practically no difficulties, while others are not open to surgical treatment. Careful technic and strict asepsis are absolute requirements.

Aneurysms are not very common. Of 551 aneurysms of all arteries, 23 were located in the subclavian artery. In a series of 120 subclavian aneurysms, two-thirds were on the right side, and in only two instances were the lesions bilateral; hence, this condition must be very rare. The third portion of the artery is the common site, but the aneurysm may extend in either direction according to size, particularly if of the fusiform type.

The following case of bilateral subclavian aneurysm is illustrative of symptoms and modes of treatment.

In September, 1908, this man entered the Boston City Hospital for the treatment of a left subclavian aneurysm. Age, 49 years; boiler-washer. He contracted syphilis 25 years ago, otherwise there is nothing material in his previous history.

Present Illness. For five or six weeks he has noticed a pulsating swelling behind and above the left clavicle, which has increased some since first observed. He attributes an enlargement of the left pupil which has existed for six years, to an injury to the left eyeball, but he has complained of numbness and tingling and some weakness in the left hand for four weeks. Physical examination shows we have to deal with a man in fair health. There is considerable arteriosclerosis. The heart is normal. The left radial pulse is slightly retarded and the impulse less distinct but more sustained than at the right wrist. Behind and extending above the inner third of the left clavicle is a smooth, rounded, expansile, pulsating tumor about the size of a hen's egg. It is not tender. The circulation in the left hand is not so good as in the right, and there is some sensory disturbance. The knee jerks are absent.

It was perfectly obvious that we had to deal with a case of aneurysm of the left subclavian artery, which was increasing rapidly in size and was causing pressure on the veins and nerves in its vicinity. The proximal end of the tumor disappeared behind the first rib and could not be defined.

Operation. It was originally planned to ligate the artery on either side close to the tumor and then shell out the sac, carefully separating it from the surrounding structures. A four inch incision was made along the clavicle, which was divided at the junction of its outer and middle thirds and then the inner two-thirds removed by disarticulating at the sterno-clavicular joint. On exposing the tumor it was found to be somewhat fusiform, and in front and above various trunks of the brachial plexus were adherent but could be separated with some care. Distally, the artery was readily exposed and ligated close to the sac, which was very thin, but the proximal portion of the aneurysm extended down into the chest so that the trunk of the artery could not be exposed. Finally, while freeing the thin sac, where it had eroded the first rib, it ruptured and this was followed by hemorrhage, which was arrested at once by gauze pressure. The situation was embarrassing because it was not known how deep the sac extended into the thoracic cavity. The sac had been entirely freed except the proximal portion. Finally, the large veins in the vicinity were retracted and a strong clamp put around the tumor rather deep in the chest, and this controlled the hemorrhage at once. On removing the sac down to the forceps the artery was observed. This was ligated with large sized silk and gave no further trouble. The aneurysm included the third, second, and a part of the first portions of the artery. The wound was closed except for a small drain, although the field was perfectly dry at the end of the operation. The arm was wrapped with sheet wadding and supported with a sling.

Considerable shock followed the operation, from which he rallied completely in 24 hours. There was subsequent paralysis of all muscles of forearm and hand and moderate edema of whole arm. There was no radial pulse. Some suppuration followed, but no constitutional symptoms, and the wound was healed in five weeks. The left pupil was more widely dilated. The fact that he could not contract the muscles resulted in some stiffness of wrist, forearm, hand and fingers, and massage was used.

After leaving the hospital he was not examined again until four years later, when he was admitted to the hospital for an aneurysm of the right subclavian artery. Meanwhile, he had not been able to do any laborious work but had enjoyed his usual fair health and was comfortable. An examination resulted as follows: He complained of considerable palpitation and dyspnea on exertion, but had no pain anywhere. The left pupil was still dilated and neither pupil reacted to light. The knee jerks were still absent and there was some ataxia and the Rhomberg sign was present, all showing that he had locomotor ataxia.

The condition of the left arm was as follows: Small radial pulse could be felt. The circulation in the hand was fair, but he said it felt cold most of the time and that the fingers were numb. The forearm and hand muscles were markedly atrophied. There was anesthesia of the hand and part of forearm. The absence of the clavicle was hardly to be noticed even on palpation and its loss did not interfere with shoulder motions, which were about normal. At the elbow, flexion and extension were normal, but rotation was absent. There was almost no motion at wrist and fingers.

The right arm is normal. The right subclavian artery presents an expansile, pulsating tumor, similar to that observed four years before on the left side, except that it is not so large and is a little smaller than a pigeon's egg. There are no pressure signs, but he says that the swelling is increasing. It was obvious that we had a right subclavian aneurysm, and it was decided to operate before the tumor caused any disturbance.

Operation. The tumor was exposed, as at the first operation by an incision along the clavicle and the removal of the inner two-thirds of that bone. It appeared to include the second and third portions of the artery, which were surrounded by branches of the brachial plexus. The veins were separated easily and the artery at either end of the aneurysm was exposed and ligated. The nerves and structures in contact with the sac were not disturbed. Pulsation ceased when the ligatures were in place. On opening the sac there was some hemorrhage, which was found to be due to the fact that the proximal ligature had worked loose because the coats of the artery were so friable. It was arrested at once by a second proximal ligature. The cavity of the aneurysm was then obliterated after the method of Matas—endoaneurismorrhaphy—by the application of a continuous, chromicized catgut suture to the two inner coats of the artery. These were very friable, owing to the arteriosclerosis. The wound was closed save for a small rubber dam drain, which was removed in 24 hours. The arm was wrapped with sheet wadding and supported with a sling. There was no shock. Convalescence was uninterrupted. There was no radial pulse and no functions of the arm were disturbed. Two weeks later he could move this arm as well as ever, and the absence of the clavicle was barely noticeable. He had no complaints and the arm appeared normal in all respects.

Anatomy. A few matters of surgical importance concerning the anatomy of this artery will be considered. It lies, approximately, behind the clavicle, its third portion on and above the first rib, and is easily accessible at this end. The first portion gives rise to all its branches, which are of good size and of considerable importance. It arises within the thorax, on the right side from the innominate artery and on the left from the aorta. It is so protected by the clavicle that the removal of the inner two-thirds or three-fourths of this bone, saving the periosteum, is a wise preliminary step and is often necessary on the left side when the first portion must be ligated. Its loss causes surprisingly little deformity or interference with the function of the arm. If need be, a portion of the manubrium and first rib could be resected. The preservation of branches for collateral circulation is important, and this is best accomplished by the method of endoaneurismorraphy of Matas. This circulation is established on the distal side by branches of the axillary, and on the proximal side by branches derived from the first portion of the subclavian, but if the ligature is placed proximal to the subclavian, the collateral is taken up from branches of the intercostal, deep epigastric, and descending branches from the neck. These need not be considered in detail. Suffice it to say that the arm does not suffer materially if the subclavian is ligated distal to its branches, but, if proximal to these, then the circulation in the forearm and hand is materially interfered with. It would seem to be rare for gangrene to result in this last instance.

In the case here reported, the ligature on the left side was proximal to all branches of the artery. Four years later the radial pulse could be felt easily, the nutrition of the arm was fair, but he said it felt cold in cold weather and then the fingers got a little bluish. On the right side, where the ligature was just distal to the vessels, although it is too early to get a radial pulse, there is no apparent difference in the circulation.

There are many important structures to be avoided in this region which need simply be enumerated: Large veins, most of which could be ligated without ill effects if wounded; the brachial plexus and the phrenic and pneumogastric nerves, all of which should be disturbed as little as possible. They may have been damaged already by the aneurysm or they may be injured by the operation. In the above case the left aneurysm had injured the plexus and further injury was done in the effort to excise the sac. On the right side the nerves were in contact with the sac, but were not disturbed. The case shows the advantage of endoaneurismorraphy in cases of subclavian aneurysm rather than excision of the sac, which is always done with risk of injury to both nerves and collateral

vessels. In that the artery arches over the apex of the lung, it would be easy to open the pleural cavity and, on the left side, the thoracic duct might be injured.

Pathology. The pathology of all aneurysms is practically the same. Occasionally the cause is trauma alone of a normal artery, such as a wound of the artery from a bullet, knife or sharp edge of bone, or the crushing of the vessel against a bone. The majority, however, are the result of an underlying arteriosclerosis. This pathologic process impairs the resistance of the intima and media and, as a result of the blood pressure being too strong for the adventitia, a gradual and spontaneous dilatation follows. It is possible, however, for such an artery to receive a local injury, thereby determining the site of an aneurysm. The arteriosclerosis in the above case was of syphilitic origin and the two aneurysms developed spontaneously. The dilatation follows the lines of least resistance and its rate and the shape and size of the tumor vary accordingly. Roughly speaking, the tumor may be fusiform, where the trunk is more or less uniformly stretched, or one side may stretch, forming a sort of sac or diverticulum. The axis of the tumor may be altered by the blood current, just as the course of a stream may be altered. Sooner or later all tissues may yield, including bone by erosion, but, meanwhile, there is more or less chronic inflammation at the circumference of the tumor, resulting in scar tissue, which may replace here and there the original walls of the sac. Nerves and other vessels may be pressed upon and their structure altered or destroyed. In many cases, particularly the saccular type, fibrin is deposited and organizes. All changes tend to progress, and final rupture is the rule if sufficient time elapses.

Symptoms. The local dilatation of an artery produces a smooth, expansile, pulsating tumor, which is characteristic of all aneurysms. Such a tumor may be palpable or even visible, according to its site. Subclavian aneurysms may be discovered easily, but on the left side it may not be possible to outline the whole tumor. For a long time there may be no pain or tenderness, simply a tumor as described. All additional signs and symptoms are the result of the increase in the size of the tumor which produces pressure upon or erosion of different structures. The chief structures, pressure upon which gives rise to symptoms in cases of subclavian aneurysm, are the neighboring nerves and veins, and of course the symptoms depend upon the particular nerve trunks or vessels involved. Paresthesia in the fingers, obscure pains in branches of the brachial plexus, motor changes, and occasionally pressure on the vagus and sympathetic nerves may be among the symptoms noticed. A neuritis with permanent nerve degeneration may result. Venous obstruction may show itself as a cyanosis of the extremity and visible venous dilatation. The radial pulse may be retarded but more sustained. Rarer changes may result if the tumor is of large size.

Prognosis. Rarely, an aneurysm of the larger arteries runs a self limited course, accomplished by the formation of thrombi, which organize and obliterate the cavity of the sac, resulting in a more or less solid, cicatricial tumor. Such a course would hardly be looked for in a subclavian aneurysm, unless we had to deal with a very distinct sacculation having a small communication with the arterial trunk.

The rule, however, is gradual increase in size, causing more and more disturbance from pressure, and a thinning of the sac, with eventual rupture either into the subcutaneous tissues or, possibly, through the skin, if it becomes adherent to the sac. The former condition might be discovered in time to ligate the artery; the latter would be fatal in a few minutes. Of eleven cases of subclavian aneurysm which received no surgical treatment, all ruptured after a period extending from date of first observation until five months to two years later.

The operative mortality of a large series of subclavian aneurysms treated by different methods, prior to 1890, was 73%, but since that time, as a result of asepsis and improved technic, it has been 16%. (It would probably be lower at the present time.) The causes have been secondary hemorrhage or infection and, as a rule, the two conditions are present. Many ligations have been followed by recurrence. Nerve trunks may be so degenerated as never to regain their functions. An aneurysm is always a serious menace to life.

Treatment. Little or nothing may be expected from palliative measures of treatment of these aneurysms and, therefore, they will not be considered here. Only surgical measures offer a chance of relief or cure, and there are three general methods of procedure: (1) Ligature. (2) Ligature, combined with incision or excision of the sac. (3) Ligature, with some plastic operation on the sac.

Ligature alone has been practised for a good many years. There are many methods, depending upon the site and the number of such ligatures. They may be proximal or distal to the tumor, or both, or they may be close or at a distance from the same. In many instances such treatment is palliative rather than curative, and is exposed to most of the risks of more efficient methods. Hence, ligation alone is generally not to be advised.

Ligature combined with simple incision and packing of the sac, allowing for subsequent drainage and healing by granulation, exposes the patient to sepsis and secondary hemorrhage and, therefore, is contraindicated. Ligature close to both aneurysmal poles, with excision of the sac, has been the method accepted by the majority of operators. It is radical and reasonably safe, and is probably the most satisfactory where the preservation of every possible help to the establishment of the collateral circulation is not

of the greatest importance. A clean field of operation results, the wound can be closed and prompt healing may be expected. The objection to the removal of the sac is the risk of destroying collateral arteries and the possible injury to neighboring or adherent nerve trunks. In the case above reported, the sac was removed on the left side, where nerve trunks were already damaged and the chance of repair was lessened by the necessary manipulation. Furthermore, although the tumor included the first portion of the artery, the excision of the sac may have interfered with better establishment of the collateral blood supply.

The third general mode of procedure is that developed and recommended by Matas. Its aim is to preserve the circulation in the artery, through a restored channel, if feasible, but at all events, to preserve all the perianeurysmal structures by means of a plastic operation, working chiefly within the opened sac. The Matas conception is ideal, but it may be difficult or impossible to execute because the blood current must be controlled during the operation and, in most cases, the sac is too brittle or not of a suitable shape. Traumatic aneurysms with healthy walls are best adapted for plastic work. The circulation can be checked temporarily by clamps, if both poles are accessible. After that the tumor is exposed but not dissected from the surrounding structures, and is then opened. Without going into detail, if we have a saccular type with one opening into the artery, this is to be closed by sutures and the sac cavity obliterated by sutures placed from within. After all has been well secured the clamps are removed. Fusiform aneurysms are more difficult to treat in this conservative manner.

On the other hand, because of the arteriosclerotic changes in the vessels and sac in very many aneurysms, restoration is difficult, and sometimes dangerous or impossible to carry out. Hence, the artery is to be ligated close to either pole, the sac opened and explored, but its outer surface is not to be disturbed. The openings of whatever branches may be given off from the sac are to be closed from within the sac which, in turn, is to be puckered and folded by sutures also placed within. This was done on the right side in the case reported and no disturbance of any sort resulted. It could not have been carried out on the left side because no clamp could have been placed proximal to the sac on account of its depth in the chest.

Operations of any sort on subclavian aneurysms are difficult because of their comparative inaccessibility and their proximity to important structures. This case illustrates the importance of trying to determine at the outset how deep the aneurysm extends into the chest and also the advisability of not freeing the sac from the surrounding structures. The subperiosteal excision of the inner two-thirds or more of the clavicle produces surprisingly little deformity and disability.

FOLLOW-UP WORK AS AN ELEMENT OF EFFECTIVE TREATMENT IN AN OUT-PATIENT CLINIC FOR EYE DISEASES. WITH EFFICIENCY TEST TABLES AND REPORTS OF CASES.

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To examine eyes to ascertain errors in vision, and to decide whether glasses are needed, is not as a rule of much scientific interest to the oculist. In out-patient work the "refraction cases" are generally regarded as the heavy chore of the clinic, because there are few interesting cases to be discovered in proportion to the large amount of routine which is the certain portion of whoever carries such a service.

From the standpoint of the public, however, the correction of errors of vision and the provision of patients with proper glasses, when required, are of extreme importance, conducing directly to health, to the industrial efficiency of wage-earners, and to the ability of children to profit by their school education and to acquire training for their future ocupation. Medical inspection has revealed the fact that 25%, more or less, of school children suffer from visual errors to a degree which calls for correction by glasses, and the amount of this work to be done in a large city is, therefore, enormous, only second to that called for by the teeth. Thousands of children whose parents cannot pay for the services of competent oculists, thousands of adults who have the same financial limitations—must now either depend upon out-patient clinics or go to the itinerant fakir or cheap "optical parlor" and pay high prices for questionable glasses.

With these considerations in mind, the Eye Clinic of the Boston Dispensary has endeavored to adapt its service with a view to attaining the maximum value from the public standpoint. Early in 1910, a study of the efficiency of the refraction work was initiated by Miss Elizabeth V. H. Richards, head worker of the social service department of the Dispensary. To quote from her report, made after an examination of the oculists's recommendations for one month:

"The oculist's time for each patient amounts to: A first examination of twenty minutes; a second one, sometimes longer, with the pupils dilated; and a third, after the pupils have resumed their normal size. Out of 60 patients whose eyes were thus tested, 45 were given a prescription for glasses. Of these, 30 never came back to order them. How many questions this raises! What about the value of the doctor's time lost, the cost of the nurse's time in taking the history and putting in the drops? What is going to be the result to the eyes and

perhaps to the general condition of the patients who need the glasses and do not get them? Why did they not get them? Were they too ignorant to believe they needed them? Did they not understand the order? Or were they too poor to buy them?"

Thus two-thirds of the 45 persons who needed glasses did not secure them. We now know from longer experience that a certain number of these persons probably came back ultimately for glasses, so the proportion of waste was probably not over 50% instead of 66 2-3%.

Believing that this serious waste must be reduced by dealing with the causes of the patient's failure to return for glasses, a trained worker in medical social service was assigned to this clinic in the spring of 1910. Since then the clinic has grown materially in size, and developed much more in efficiency, as the following table demonstrates:

TABLE I.—REDUCTION OF WASTED WORK IN AN EYE CLINIC.

Date.	Pts. examined.	Found not to need glasses.	Needed glasses and secured them.	Needed and did not secure glasses.	Waste, i.e. per cent. of total needing glasses who did not secure them.
Autumn quarter, 1910	321	19	213	89	29.4%
Autumn quarter, 1911	328	51	222	57	20.4%
Spring quarter, 1912	434	91	372	32	7.9%
October and November, 1912			252	12	4.5%

By what methods were these results achieved? The social worker is on daily service in the clinic. She sees each new patient, takes a brief social history either from the patient, the parent, or the school nurse; she is either present or learns immediately from the examining oculist the results of the refraction tests, and she explains carefully why glasses are needed, as the oculist, under the pressure of a busy clinic, often has too little time to do. When the patient does not return at the proper time for glasses, a postal card is sent, or, in some cases, a visit is paid to the home. The latter course is, however, rarely necessary.

The number of visits paid per patient in refraction work is of some technical interest. The following table shows a change in this regard:

TABLE II.—NUMBER OF VISITS PAID BY REFRACTION CASES.

Date.	No. pts. paying 1 visit.		No. pts. paying 2 visits.		No. pts. paying 3 visits.		No. pts. paying 4 visits.		Total No pts.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Autumn quarter, 1910	179	56%	92	29%	41	12%	9	3%	321	100%
Autumn quarter, 1911	80	24%	71	22%	78	23%	99	30%	328	100%
Spring quarter, 1912	161	37%	62	14%	72	17%	139	32%	434	100%

Comparing 1910 and 1911 in this table, the number of patients paying three or four visits increases markedly, the proportion paying three visits almost doubling and the proportion paying four visits increasing ten times. Comparing 1911 with 1912, the proportion paying four visits continues to increase, though slightly (30% to 32%). The proportion paying two or three visits diminishes (from 45% to 31%) and this diminution is taken up by the increase in those paying one visit only (37% instead of 24%). This last change is due to an effort to complete the whole work of examination and prescription in one visit whenever possible.*

This saves time of both oculist and patient, and, when the age and eye of the patient permit, is an undoubted advantage. While a certain proportion of cases—about one-third—undoubtedly require four visits to accomplish the work properly, we have made an effort to complete the whole work of examination and prescription in one visit whenever possible. Thus the number of those who formerly had to come back once or twice—taking more of the time of the physicians and more of their own time from home or wage-earning—is diminished, with a saving all around.

* Practically all patients for whom glasses are prescribed must return to secure them, as they are fitted at the Dispensary; and at this visit, the glasses, after fitting, are verified by the oculist. The above table includes only the visit paid up to the time the prescription is issued, the final visit for fitting and verifying glasses not being counted. Had it been included, it would simply have added one visit to almost every case.

ACUTE EYE DISEASES.

Acute disease of the eye, occurring among those not able or accustomed to employ skilled oculists, is a difficult problem. When hospital care is indicated, it is often hard to secure, both because empty beds are few and because many persons are unwilling to enter a hospital when only their eyes are affected—often failing to realize the grave danger to their sight. Out-patient treatment for these diseases, on the other hand, is too often inefficient because of the failure to follow up the patient to be sure that the needed treatment is actually secured. The social worker in the eye clinic of the Dispensary has given about one-third of her time to refraction cases, and much of the remaining time to increasing the efficiency of treatment of patients suffering from acute eye diseases. The aim has been to do systematic follow-up work, giving treatment in the home occasionally when special circumstances have demanded it, but more usually making sure that the patient came back

to the clinic when further treatment was required. Thus to insure a patient's return often calls for considerable "social work," as, for instance, when a family must be visited at home, and by tactful argument shown the importance of having their daughter's eyes properly treated, or when the wage-earner of the family is incapacitated by the disease, and provision must be made for aiding his dependents while he is kept away from work involving use of the eyes.

The interest, energy, and efficiency of the social worker in a clinic are important factors in its success. The eye department of the Dispensary has been fortunate in having Mrs. Anna Pride, who combines these qualities with an intelligent grasp of the problems of the service. Those responsible for the clinic are under great obligations to her.

A few case histories will illustrate the character of this service.

CASE 1. Mrs. A. B. came to the clinic with suppurative abrasion involving half the cornea of the left eye, having been struck in the eye with a stove-lifter.

To prevent infection, a 20% solution of argyrol was used and the pupil immediately dilated at clinic with atropine; 1% atropine ointment was prescribed, together with the argyrol, and the patient told to return the following day.

Mrs. B. made five daily visits, the ointment being applied each time, as she could not get it in very well at home. The improvement was rapid and marked, but after the fifth visit Mrs. B. failed to return. The district nurse in her neighborhood was asked to call and if the patient was too ill to go to the Dispensary, to apply the ointment and report on the condition of the pupil; otherwise, to urge the patient to return to the clinic the following day. The district nurse reported no one living at the given address, neighbors saying the house had been vacant for six months. The social worker then wrote to the postoffice, explaining the case and asking if the patient's new address could be traced.

In a day or two an answer was received: the patient was found to be living outside of Boston. The social worker then called upon her and discovered that she had purposely given a wrong address, as she was afraid she would not be treated if it were known that she lived outside the city limits. When told that this would not stand in the way of treatment at the Dispensary, she apologized for giving so much trouble and appeared grateful for the interest taken in her. It was further found that she was not able to pay the daily admission fee of ten cents, in addition to the car fare, as her husband and daughter were out of work temporarily, and she herself had to give up work because of the eye condition. Free admission and treatment were promised her, and she gladly agreed to attend regularly.

She did return, having suffered a slight relapse because of the intermission in treatment. After four visits more she had improved so much that the atropine was discontinued, with the cornea intact, and a dionin ointment was prescribed to promote absorption of the scar.

The prompt securing of continued treatment for this woman undoubtedly resulted in saving the vision.

The patient was finally discharged, after being refracted, and the vision was found to be 10-200 O.D.; 8-200 O.S.—a probable slight loss in the injured eye, as the woman said she had always been very far-sighted, and probably the vision had previously been alike in both eyes. A high spherical and cylindrical correction gave the patient a vision of O.D. 20-80; O.S. 20-120. A final examination showed the corneal scar to be very thin, and vision will probably improve as further absorption takes place.

CASE 2. C. D. came to the clinic on October 16, with iritis, O.S., of two weeks' duration. She had used boric acid, hoping the "cold" in the eye would clear up. There were many adhesions; the pupil was almost blocked. Persistent treatment in the clinic, at the first visit, with atropine crystals, brought about a slight dilatation in the pupil before the patient left. A 10% solution of dionin gave an excellent reaction.

The patient was coöperative, and reported daily, staying in the clinic a couple of hours each day to receive treatment; and in the late afternoon, the social worker called at the home and gave further applications of the ointment. Improvement was at first slight but steady. On October 23 the patient failed to come to the clinic. The social worker, on calling at her home, found her sick in bed, with a district nurse in attendance. Morphine had been given, and the pupil was somewhat contracted. A 4% solution of atropine was used at once, and the eye condition communicated to the doctor in charge, who promised to alter his treatment.

While in bed, the patient was visited daily by a district nurse, who, under instructions from the eye clinic applied atropine and dionin, the social worker in the clinic calling occasionally to keep track of pupil and tension.

On November 4 the patient was able to return to the clinic and on November 8 she was discharged cured. Some weeks later she was refracted with the following result: O.D. and O.S. 20-120, without glasses, and O.D. 20-30 and O.S. 20-60 with glasses. With this vision the patient can pursue her life and work. In this case the sight would undoubtedly have been entirely lost had the treatment not been followed up promptly.

CASE 3. J. E., a child of two years, came to the clinic on May 23 with keratitis. A von Pirquet test was markedly positive. Atropine ointment and yellow oxide of mercury were prescribed, but the condition did not show any sign of improvement four days later, so the child was admitted to the Boston Dispensary Hospital for Children where she remained for five weeks, and, at the end of this time, was discharged well.

In August the child contracted a pneumococcus infection of the eyes, and was again admitted to the Hospital. During the interval between May and September she had been given several injections of tuberculin, but not regularly.

After discharge from the Hospital, on September 5, she was again admitted to the clinic (on September 27) with an acute eye condition. After an examination in the Dermatological Department, a tentative diagnosis of syphilis was made, and appropriate treatment prescribed. The child soon began to show a marked improvement under a combination of constitutional and local treatment. On November 25 atropine was discontinued and dionin oint-

ment was prescribed to promote absorption of the scars.

It was found impossible, however, to carry out this treatment effectively, owing to the poverty of the family. The child's mother was intelligent, but their income was insufficient. Through the social service, a relief society was interested in the case, and a more generous diet provided for the child than her own parents could afford. The sleeping conditions were over-crowded, so a crib was given in which the patient could sleep alone in a well-ventilated room.

Since this course of medical and social treatment began, the patient has steadily gained in weight, and, although she has had a slight attack of bronchitis, general conditions are favorable and the prognosis is good.

CASE 4. Mary T., a girl of eleven, came to the Eye Clinic in March, 1911, with a corneal ulcer, O.D. Treatment until May brought no very satisfactory improvement. An investigation of the home condition was then made by the social worker, revealing the fact that the mother was a scrub woman, working away from home, and that the child was not receiving adequate care.

Mary was then admitted to the Dispensary Hospital for Children and, after five weeks, was discharged cured. About a year afterwards, on July 7, 1912, Mary returned, with a phlyctenular condition, O.D. She was treated at home, with material improvement, coming to the clinic daily to have atropine ointment applied, and the mother was given instructions about hygiene and diet.

On December 6, 1912, the child returned again—this time with keratitis, O.S. A von Pirquet test was strongly positive, and x-ray showed enlarged bronchial glands. Knowledge of the home conditions led to the judgment that the child could not get well unless a change was made. Through the social service a child-placing society undertook to board the patient in the country for a period of at least six months. The social worker of the Eye Clinic paid a visit to the child in her new home, giving instructions as to hygiene and diet, and shown how the eye ointment should be applied. The child was brought into the clinic as frequently as desired. The eye condition soon yielded to treatment, so that on December 26 atropine was discontinued and dionin ointment prescribed.

In June the patient was returned to her home, in good condition. She then began to have tuberculin treatment, under which she has steadily gained in weight. There has been no recurrence of the eye condition.

EFFICIENCY TESTS.

The efficiency table presented below shows that, for five acute eye diseases, a noticeable improvement in service has been brought about. The table is based upon two methods of testing efficiency; first, the statistical or "impersonal" method, based on the number of visits paid per patient, classified by diagnosis, and on the assumption that in general a larger number of visits per patient, suffering from a given disease, indicates better results; second, a classification of the medical result obtained with each patient, made almost entirely from the clinical records. While the division between *cured* and

TABLE III.—EFFICIENCY TEST OF EYE CLINIC.— FIVE ACUTE DISEASES.

		NUMBER OF VISITS FOR PATIENT: 1	%	2	3	4	5	% under 6	6 to 8	6 to 12	over 12	% over 6	TOTAL CASES	MEDICAL RESULTS. CURED. NO.	%	IMP'D. NO.	%	LOST. NO.	%
Iritis	Fall quarter, 1910	0	0																
	Spring quarter, 1912	1	25	2	1	1		75	1			25	4	1	25	3	75	0	0
Phlyctenular Keratitis	Fall quarter, 1910	0	0					50				50	12	1	8	5	42	5	42
	Spring quarter, 1912	3	25	4	3	2	2	100	2	4	1	0	12	3	25	5	42	4	33
Phlyctenular Conjunctivitis	Fall quarter, 1910	3	20	2	2	1		100		1		0	10	4	40	3	30	3	30
	Spring quarter, 1912	4	45	2	3	3	1	70	1	1	1	30	9	3	33	2	22	4	45
Acute Conjunctivitis	Fall quarter, 1910	9	55	4	6	2	3	89	1	2	2	11	27	3	11	6	33	1	4
	Spring quarter, 1912	0	0	2	2	1	1	45	10	2	2	55	17	7	41	8	48	7	41
Blepharitis	Fall quarter, 1910	9	55	4	2	1	1	100				0	17	2	12	8	48	7	41
	Spring quarter, 1912	15	35	9	10	2	1	95	1	1		5	43	19	44	9	21	15	35
	Fall quarter, 1910	16	60	7	2	2	1	100				0	27	3	11	9	33	15	56
	Spring quarter, 1912	16	45	11	4	2	1	95		1		5	34	4	12	18	53	12	35
Total for all Five	Fall quarter, 1910	32	46	15	6	3	6	97	1		1	3	60	12	17	27	39	30	44
	Spring quarter, 1912	33	26	24	25	8	10	79¾	14	9	13	20¼	126	51	40½	44	35	31	24½

improved is in many cases dubious, just as it is in hospital records, the "lost" case is a fairly definite quantity. Patients who fail to return for treatment after a single visit, or after a number of visits which is evidently too small for the cure of their disease, may safely be put down as "lost."

Such efficiency tests are of material help to the medical man in charge of the clinic and to the administrator of the institution. They indicate weak points; they should help to develop strong ones.

It would be highly desirable to ascertain the classes of the community who are chiefly concerned in a charitable clinic for eye diseases. Many indications drawn from our social worker's experience suggest that there is a large class in the community which is above the poverty line, but which has very limited means. These people are self-supporting and do not ordinarily attend free clinics for general medical care. When their eyes trouble them, they cannot afford to pay a competent oculist's fees, and these people, therefore, are the main patrons of the optician's parlor. On the other hand, they will not come to the ordinary out-patient clinic, partly because the morning hours are inconvenient, and also because they do not wish to accept charity. There can be little doubt that this large middle class ought to be able to secure competent eye service from properly trained members of the profession on an ethical basis and without loss of self-respect. Some provision to meet this need appears to be called for.

PROGRESS IN THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION.*

BY W. E. LADD, M.D., BOSTON.

Now that the controversy as to whether intussusception should be treated by inflation and irrigation, or by immediate operation, is over, and timely surgery is considered the best treatment, it is interesting to see whether any reduction in the mortality has taken place and whether we have at our disposal any means for still further reducing it.

In 1908 Dr. J. S. Stone[1] reported that in five years previous to that date, only eight patients with intussusception had been brought to the surgical side of the Children's Hospital. Of these eight, only one had recovered. He also reported that at the Infants' Hospital in the period of ten years previous to that date, the same number had been treated with the same result, one recovery.

Dr. E. A. Codman[2] at the same time reported the results from the records of the Massachusetts General Hospital of a period of ten years. At that institution ten infants with intussusception had been treated; one made an operative recovery but died four weeks later from a secondary operation for hernia. An eleventh case, where the diagnosis was doubtful, recovered following use of enemata. The results of treatment of intussusception in adults at the Massachusetts General Hospital were considerably better, but as that is outside the scope of this paper it will not be considered. Taking these reports of only five years ago from three comparatively representative hospitals in this community, the outlook seemed discouraging. Including the Massachusetts General Hospital records the mortality from intussusception in infants was just over 90%. Excluding them and considering the children and infants only, the mortality was just under 90%. Dr. Codman points out that at the Massachusetts General Hospital each surgeon has an opportunity of operating on only one or two cases of intussusception in ten years and consequently lacks uniformity of method. This suggests the advisability of having these cases sent, when possible, to a hospital devoted to the care of children or having surgeons specially qualified for the work take care of them in the more general hospitals.

I have selected from the records of the Children's Hospital for the last four and a half years, Dr. Stone's and my cases of intussusception; I find that Dr. Stone and I have each operated on ten patients with this disease. Six of Dr. Stone's patients recovered and four died, while of my ten patients, five recovered and five died. In this series of twenty cases we have a mortality of 45%, just half that which was reported from three hospitals here five years ago. These facts are encouraging and I believe that they have been made possible by the coöperation of the pediatrician and general medical practitioner, and I feel sure that with continued coöperation between the medical man and the surgeon and with earlier diagnosis and operation, intussusception will be removed from the list of diseases of high mortality. I want to consider this series of twenty cases and point out a few striking facts. The average age of Dr. Stone's six patients who recovered was two years. The average duration of symptoms of four of these patients was thirty-nine hours. In the other two cases the duration of symptoms was not recorded. The average age of my five patients who recovered was seven months and the average duration of symptoms was forty-eight hours. The earliest case I had was under twenty-four hours, while the earliest case Dr. Stone had was of thirty-six hours' duration. Of the patients who died the duration of symptoms was nearly the same and for the nine patients the average was seventy-five hours. Neither Dr. Stone nor I have lost any case having duration of symptoms under forty-eight hours. With one exception neither of us has been able to save any case with duration of symptoms over forty-eight hours. I had one patient, an infant two months old, who was brought to the hospital four days after the onset of symptoms of intussusception, who made an uneventful recovery following laparotomy

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and reduction. This case, I believe, however, to be the exception to prove the rule that intussusception is practically a hopeless condition in infants after it has lasted much over forty-eight hours. In any event the deduction to be drawn from the facts given is obvious, namely that we must get the cases within forty-eight hours and preferably within thirty-six or twenty-four hours.

Turning to Clubbe,[2] whose works on intussusception we all must admire and whose statistics so far as I know are better than anybody else's, we find that he has passed through the stage that we are going through in this community at present. That is in his first fifty cases he had a mortality of 50%, but as he succeeded in getting the cases brought to the hospital earlier, his mortality dropped correspondingly. In 1909 he reports twenty-six cases without a death, and his last fifty cases with a mortality of 8%. In this series of fifty cases the average time between the onset of symptoms and operation was seventeen hours. It is to be noted that the average duration of symptoms in these fifty cases of Clubbe's is less than the earliest case that either Dr. Stone or I have ever had an opportunity to operate on. Clubbe says: "We seem to have educated our medical community in this matter, and convinced them of the extreme importance of never missing a case of intussusception at the first visit. The surgeon is entirely dependent upon the general practitioner for the stage at which the case reaches the hospital, and if in any given locality the majority of intussusceptions are sent in late, then, through no fault of the surgeon, the mortality will continue to be high."

The question to be solved in this community at present, is how to make the diagnosis early and thus avoid the disastrous results of late operation. I believe that it is very important for the practitioner to have a different picture in his mind of intussusception from the one given in many text books. That is, the classical signs and symptoms often given are: a pallid face with pinched features, sunken eyes, a rapid and feeble pulse, a distended abdomen with a palpable tumor in the left lower quadrant or by rectum, bloody stools and stercoraceous vomiting. This makes the picture of an infant who has suffered from obstruction for two days or more, at a time when the diagnosis is of little value. It is of far more use for the practitioner to remember that infants in the early stages of intussusception, between paroxysms of colicky pain are apt to look perfectly well and have no elevation of pulse or temperature; and that the mother's story of a baby who has been well and suddenly taken with an attack of abdominal pain associated with drawing up of the legs and followed by vomiting, is sufficient reason for making a thorough abdominal examination even if the baby looks well. At this period before any distention has taken place, a small mass or sense of resistance may be felt at any place along the course of the colon, but in this early stage is most likely to be felt at the cecum or between there and the middle of the transverse colon. The next sign which presents itself is the appearance of blood in the stools. The presence of blood without much feces, and without mucus and the frequent movements characteristic of infectious diarrhea, is practically pathognomonic of intussusception. Any patient passing blood as described should be taken to the surgeon at once, whether any tumor can be felt or not. Later, in thirty-six to forty-eight hours the classical symptoms appear and the diagnosis is easy when the treatment becomes difficult and the prognosis grave.

There must, of course, arise a certain number of cases in which the early diagnosis is difficult. For such cases I believe that the x-ray with bismuth injections may be very useful. In Clubbe's statistics we find that in one hundred and fifty-seven cases, only six-tenths of one per cent. involved the small intestine alone. From these figures we may judge that only in very rare cases would the obstruction be above the ileo-cecal valve and consequently out of reach of bismuth given by rectum. The long time taken for bismuth given by mouth to reach the lower bowel makes that procedure out of the question. Some months ago I had a case in the Children's Hospital presenting symptoms of obstruction at the hepatic flexure, but not very suggestive of intussusception. Dr. A. George gave the child a bismuth injection and then took an x-ray picture. He believed from the plates that there was obstruction at the hepatic flexure. At operation I found that the lumen of the colon was partially but not totally obliterated by an adhesive band; this was freed, following which the child's symptoms disappeared and she made an uneventful recovery.

Seeing the readiness with which the bismuth travelled into the colon in this case, it occurred to me that this method might be used to advantage in the diagnosis of intussusception. During the last few months I have employed this method three times; twice to see if I could facilitate the operation by causing partial reduction with enemata and once for diagnostic purposes.

Plate I was taken of an infant six months old, who was brought to the hospital about twenty-four hours after the onset of symptoms. These consisted of intermittent attacks of abdominal pain followed by vomiting and bloody stools with very little feces. The abdomen was not distended and the mass could be very easily felt in the mid-line, just above the umbilicus. The diagnosis was, of course, simple but I had a bismuth injection given in hopes of causing partial reduction and thus facilitating the operation. This end was not accomplished; the position of the tumor remained unchanged, but the plate shows very clearly how useful this procedure might be in a case where the diagnosis was difficult. Note the cervix-like shape of the advancing part of the intussusception and how distinctly this is shown

to be within the bowel by the bismuth clinging to the wall of the intussuscipiens extending back over it. In this patient I made a right rectus incision and reduced the intussusception readily. The patient acquired an erysipelas of the leg four days after operation, but recovered from this as well as from the intussusception, and went home well seventeen days after entrance to the hospital. Pate II is perfectly negative, but is introduced to show the futility of attempts at reduction by enemata. This plate was taken of an infant five and a half months old, who was brought to the hospital three days after the onset, and presenting all the classical symptoms. The tumor was within two inches of the rectum. The injection was given in hopes of bringing the mass high enough in the abdomen to allow it to be delivered into the wound which was made in the median line. Note in the plate that no bismuth shows above the sacrum. The operation was difficult, but reduction accomplished, the baby lived for two weeks and then died from complications. Plate III was taken of a child in the medical ward, with infectious diarrhea. This patient, seventeen months old, was under the care of Dr. Thomas M. Rotch. On account of the bloody stools and sick appearance of the baby, Dr. Rotch wanted to be assured that he was not dealing with a case of intussusception. Dr. Stone and I saw the case in consultation. We gave a bismuth injection and had an x-ray photograph taken. From the plate we concluded that this was not a case of intussusception. The results justified the conclusion; the baby ran the course of an infectious diarrhea, eventually recovering. Though this plate is not as clear as I feel sure others will be in the future, a marked difference is to be noted between it and Plate I. Where the bismuth stops at the hepatic flexure, it stops almost straight across the bowel and not in the shape of a letter "U," as in Plate I, and there is no shadow of a tumor between the hepatic flexure and the cecum. Plate IV is simply inserted to show how the bismuth will proceed from the rectum to the cecum in a normal child. Though these cases are few in number, they suggest strongly the usefulness of the method as an aid to diagnosis.

In conclusion, it seems fair to state that the time has passed when a recovery from intussusception following laparotomy and reduction is to be considered a surgical curiosity. That in the last five years we have cured at the Children's Hospital ten times as many cases of intussusception as in a period of five years previous to 1908. That the medical practitioner deserves part of the credit for this gratifying improvement for having brought the cases earlier to the hospital. That in the future if they will bring still earlier and doubtful cases we can hope to determine the diagnosis with the aid of bismuth injections and the x-ray in time to cause another marked reduction in mortality. That patients with intussusception operated on within thirty-six hours from the onset of symptoms may be expected to recover.

I want to thank Dr. J .S. Stone for the privilege of reporting his cases with mine.

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[1] Stone, J. S.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 425.
[2] Codman, E. A.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 429.
[3] Clubbe, C. P. B.: Brit. Jour. Chil. Dis., 1909, vol. vi. p. 311.

Clinical Department.

A CASE OF SEEMINGLY HOPELESS PERITONITIS APPARENTLY CURED BY HYPODERMIC INJECTIONS OF "MARINE PLASMA."

BY HORACE PACKARD, M.D., BOSTON,
Professor of Surgery, Boston University.

THE case which has prompted this communication was briefly as follows:

Early on the afternoon of Dec. 2, 1912, I saw, in consultation with Dr. J. Herbert Moore of Brookline, a patient acutely ill with some obscure abdominal difficulty. The symptoms were not sufficiently clear to warrant a diagnosis of appendicitis, but they were so alarming and had come on so precipitately and were so indicative of peritonitis from some cause that immediate operation was urged. Without delay she was removed to the hospital, and under gas-oxygen anesthesia the abdomen was opened in the median line. Immediately offensive gray fluid presented in the wound from which a culture was taken. Subsequent examination showed colon bacilli infection. The appendix was at once sought as the most probable source of the trouble. It was found well down over the pelvic brim, perforated near the middle and without protective adhesions. Much free pus was abroad in the pelvis and among adjacent loops of intestines. Not much was done in the way of "peritoneal toilet" except a rapid and brief saline irrigation of the pelvis and iliac fossae. Two stab wounds for drainage were made each side of the original wound and the latter closed throughout except for silver wire capillary drainage. Multiple rubber drains were adjusted in the stab wounds. The patient was placed in the Fowler posture and rectal lavage instituted.

Recovery from the immediate effects of the operation occurred without nausea or vomiting, but in the first twenty-four hours the patient complained bitterly of backache and begged to be permitted to lie down. The Fowler posture was, therefore, abandoned. For thirty-six hours a fairly free discharge came from the multiple drains. On the fifth day they were removed because no more discharge came from them and irrigation through them returned clear. In the meanwhile the patient's general condition was not alarming as far as temperature, pain, or gastric disturbance were concerned, but she had gradually and steadily developed tympanitis to such a degree that respiration had become rapid and superficial. Enemata wholly failed to stimulate bowel evacuation, peristalsis had ceased and death seemed a matter of but a few days or hours.

Happening to have in my cold cellar a few ampoules of "Plasma Quinton" (modified sea water) which I brought home from Paris on my last return from abroad, I bethought me to try as a last resort hypodermic injections of it, feeling sure that at worst it could do no harm. On the morning of the fourth day 100 c.c. were administered in the gluteal region. Twelve hours later 100 c.c. were injected on the other side. This was continued twice daily until 800 c.c. had been given. Within twenty-four hours after the first administration a distinct im-





TREATMENT OF INTERSUSCEPTION.—LAPD.

tension had become so great and reached up to and filled the epigastrium and interfered so much with the action of the diaphragm that breathing was short and labored. Had there not been the localized abscess in the epigastrium late in the convalescence, the proposition that she never had general peritonitis and that the whole infection remained local and was taken care of by the drains, might be tenable, but the fact stands that peristalsis had ceased and all efforts to produce evacuations had failed. Based on repeated experiences in similar cases I felt that life would come to an end inside of the next 72 hours.

I am well aware that this one case does not prove anything conclusive in regard to the value of "Plasma Quinton" in septic infections. This communication is presented, not to make extravagant claims for the efficiency of this simple expedient, but to record the facts with the hope that others working in the same line may give it a trial until its worth is established or refuted.

Since the above experience two other threatening cases of peritonitis, one following removal

The mineral ingredients and salts, such as are found in sea water, therefore, must play an essential part in the origin of life and in the support of life once it is established, and in the maintenance of health and strength. All life upon land has come up from the sea and developed through ages to its present state. The only source of mineral ingredients and food salts open to land animals is through the channels of drinking water and the ordinary vegetable and animal foodstuffs. Do they get under all circumstances enough to give them the fullest development, to maintain health and strength and resistance to disease?" In this spirit of research he went about his investigations and

to be within the bowel by the bismuth clinging to the wall of the intussuscipiens extending back over it. In this patient I made a right rectus incision and reduced the intussusception readily. The patient acquired an erysipelas of the leg four days after operation, but recovered from this as well as from the intussusception, and went home well seventeen days after entrance to the hospital. Pate II is perfectly negative, but is introduced to show the futility of attempts at reduction by enemata. This plate was taken of an infant five and a half months old, who

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[1] Stone, J. S.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 425.
[2] Codman, E. A.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 439.
[3] Clubbe, C. P. B.: Brit. Jour. Chil. Dis., 1909, vol. vi. p. 311.





TREATMENT OF INTUSSUSCEPTION.—LADD.

to be considered a surgical curiosity. That in the last five years we have cured at the Children's Hospital ten times as many cases of intussusception as in a period of five years previous to 1908. That the medical practitioner deserves part of the credit for this gratifying improvement for having brought the cases earlier to the hospital. That in the future if they will bring still earlier and doubtful cases we can hope to determine the diagnosis with the aid of bismuth injections and the x-ray in time to cause another marked reduction in mortality. That patients with intussusception operated on within the first twenty-four hours the patient complained bitterly of backache and begged to be permitted to lie down. The Fowler posture was, therefore, abandoned. For thirty-six hours a fairly free discharge came from the multiple drains. On the fifth day they were removed because no more discharge came from them and irrigation through them returned clear. In the meanwhile the patient's general condition was not alarming as far as temperature, pain, or gastric disturbance were concerned, but she had gradually and steadily developed tympanitis to such a degree that respiration had become rapid and superficial. Enemata wholly failed to stimulate bowel evacuation, peristalsis had ceased and death seemed a matter of but a few days or hours.

Happening to have in my cold cellar a few ampoules of "Plasma Quinton" (modified sea water) which I brought home from Paris on my last return from abroad, I bethought me to try as a last resort hypodermic injections of it, feeling sure that at worst it could do no harm. On the morning of the fourth day 100 c.c. were administered in the gluteal region. Twelve hours later 100 c.c. were injected on the other side. This was continued twice daily until 800 c.c. had been given. Within twenty-four hours after the first administration a distinct improvement in the patient's condition was observed. Gas and fecal discharges occurred with progressive relief of the abdominal distention, the breathing became fuller and deeper and the general condition in every way looked more encouraging. Steady progress followed until the 29th day, when the temperature, which had been between 99 and 101 suddenly shot up to 102. About this time a tender bunch was discovered in the right hypochondrium just about the level of the navel. On the 32d day this was incised and a tablespoonful or two of pus evacuated from a space well walled off from the rest of the peritoneal cavity. There was a temporary drop in the temperature to 98 3-5 immediately after this, but it soon began to creep up again and reached 100 3-5 on the 36th day. At this juncture 50 c.c. of sea water were given with prompt fall of temperature to normal. There was no further interruption of convalescence and full recovery has followed. It must not be omitted that on the second, fifth, twelfth and twenty-second days she had autogenous colon bacillus vaccine in doses of 10 million each.

On analyzing this case now that recovery has occurred, we must not lose sight of the fact that at no time was there any severe gastric disturbance. This may be accounted for in part by the fact that the patient had gas-oxygen anesthesia —and not much of it for the operation was very brief—and she awakened almost at once without showing any ill effects whatever. Her convalescence thus started without the handicap of ether vomiting. The pulse was 108 the day after the first operation and never exceeded that at any time. It was mainly in the nineties and one hundreds until the final drop to normal three days after the final administration of the "Plasma." At no time was there much pain except the unbearable pain in the back which prevented maintenance of the Fowler posture. On the fourth and fifth days the abdominal distension had become so great and reached up to and filled the epigastrium and interfered so much with the action of the diaphragm that breathing was short and labored. Had there not been the localized abscess in the epigastrium late in the convalescence, the proposition that she never had general peritonitis and that the whole infection remained local and was taken care of by the drains, might be tenable, but the fact stands that peristalsis had ceased and all efforts to produce evacuations had failed. Based on repeated experiences in similar cases I felt that life would come to an end inside of the next 72 hours.

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Since the above experience two other threatening cases of peritonitis, one following removal of pus tubes, the other a sequel to appendicitis, have been treated in the same way with rapid subsidence of symptoms and recovery.

A word relative to sea water as a medicinal agent may be of interest. It first came to my notice when looking about the Hospitals of Paris in the summer of 1911. On making inquiries for something new in medical or surgical science I was directed to the Quinton Dispensary. There I found M. Quinton (who, by the way, is not a physician but an assistant professor of biology in the University of France), surrounded by an earnest band of workers, many of whom volunteer their services from benevolent motives. To this clinic mothers bring their sick babies by the hundreds during the summer months. Cholera infantum is such a frightfully fatal disease that anything which promises relief is eagerly grasped. It happened that this was the malady to which M. Quinton first directed his attention. The results have been superior to any other treatment that has ever been tried. I saw case after case of desperately sick, emaciated and apparently dying infants brought in, injected under the skin of the back with 30 to 50 c.c. of sea water twice daily, and on each visit show steady improvement and finally fully recover.

The scope of sea water in other directions has not yet been fully demonstrated, but there is some evidence of its value in the toxemia of pregnancy, acute nephritis of the exanthemata and possibly albuminuria from other causes, and general and local septic conditions. Cases also of chronic skin diseases, such as eczema and psoriasis have been reported cured under its action.

What could be more appropriate than that this harmless material should be used on our floating hospital ship this coming summer. Its use is not wholly empirical. M. Quinton reasoned it out as follows: "Life first started in the sea. The mineral ingredients and salts, such as are found in sea water, therefore, must play an essential part in the origin of life and in the support of life once it is established, and in the maintenance of health and strength. All life upon land has come up from the sea and developed through ages to its present state. The only source of mineral ingredients and food salts open to land animals is through the channels of drinking water and the ordinary vegetable and animal foodstuffs. Do they get under all circumstances enough to give them the fullest development, to maintain health and strength and resistance to disease?" In this spirit of research he went about his investigations and

experiments with sea water. Most accurate and exhaustive chemical analyses showed many mineral ingredients in plainly appreciable quantity and many others in small and infinitesimal proportions. The sea water is taken in aseptic containers from several fathoms below the surface and far enough away from land to escape any shore contamination. It is then diluted with the purest spring water until it is an isotonic solution and then filtered. It is not sterilized nor subjected to any heat nor is any chemical antiseptic added to it. It is then placed in sterile glass ampoules of varying sizes from 50 c.c. to 500 c.c. and sealed.

There seems no reason why, if this material prove to be of value, we should not prepare it here in Boston in connection with our research laboratories. We have the whole Atlantic Ocean of sea water at our doors. In the meantime arrangements have been made for its importation from Paris and it can now be secured in Boston.

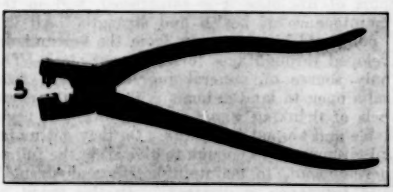
New Instrument.

A CONVENIENT ANATOMIC DEVICE.

BY ROBERT M. GREEN, M.D., BOSTON,

Instructor in Anatomy, Harvard Medical School.

PROBABLY all anatomists and most students have been distressed by the rapidity with which dissections dry after the removal of the skin and superficial fascia. To obviate this, various devices have been employed, such as wrapping the parts in wet cloths or smearing them with vaseline. None of these protective substances, however, approaches the value and efficacy of the normal coverings. A fair degree of protection may be obtained by approximating the skin and fascia along each incision with a continuous, over-and-over stitch of stout waxed thread. But the great objection to this method is the time consumed by it, since the stitch must be entirely removed and renewed whenever the dissection is opened for work. Moreover, after such repeated sewings, the skin edges become frayed and will no longer hold the suture. Obviously what is desired is some device whereby skin and fascia can be held in apposition and repeatedly opened and closed without undue labor or consumption of time.



Shoe-Eye Rivet and Set. (Buettner-Whitcher.)

It occurred to me that perhaps the ordinary shoe-eye rivet, such as is used on laced boots and leggings, might to advantage be employed for this purpose. Accordingly I procured some of these rivets from a wholesale dealer in shoemakers' supplies, and from a large machine-shop and hardware store a Buettner-Whitcher set for applying them. In the accompanying illustration a rivet is shown one-half size and the set reduced three-fourths.

Upon experiment, I found that the rivets could very easily and conveniently be applied to the skin edges, as to a boot or legging, and that they held with amply sufficient firmness to allow the incision to be laced up with string. The technic of their application is as follows: The rivet is inserted into a slot in the lower jaw of the open set, in the relative position as shown in the illustration. The skin flap is then placed, with the raw side up, between the upper jaw of the set and the point of the rivet, so that the latter impinges upon the skin at the spot where it is to be fixed. When the handles of the set are closed by a firm grasp of the hand, the point of the hollow rivet stem is driven through the skin and clinched on the raw side. The set is then easily disengaged by opening the handles and slipping the slot of the lower jaw from the now stationary rivet.

The rivets may be thus applied either to the skin alone, or to both skin and fascia when the two have been reflected in one layer. When possible, the latter method is preferable, since it ensures covering the entire dissection with its normal fat envelope, which inevitably retracts under the skin when separated therefrom. In applying the rivets to fascia and skin together, it is desirable first to punch a hole for each with a slender knife or stout autopsy needle, especially in regions like the thigh and back, where the fascia is very dense, since the set is hardly able to drive the point of the rivet through so thick a layer, and in consequence may often in such situations fix the rivet unsatisfactorily and insecurely. In practice it proved advisable to place the rivets two inches apart and a quarter of an inch from the skin edge, the rivets along the opposite margin being spaced at alternate intervals.

By reducing the number of incisions to a minimum, and reflecting skin and fascia together in large flaps, it is thus possible, with very little effort, to provide a mode of closure which protects underlying structures better than any other device I have seen, and at the same time allows the incisions to be repeatedly opened for work, study, or demonstration, and reclosed quickly and efficiently. By applying the rivets as fast as the dissection proceeds, an entire body can be equipped without appreciable labor, and can be laced and unlaced from head to foot in a moment's time. I am led to record my use of this device in the hope that it may perhaps prove of service and convenience to others in similar work.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, January 22, 1913, at 8.30 P. M.

The President, Dr. Charles A. E. Codman, in the chair.

MODERN GENITOURINARY DIAGNOSIS AND TREATMENT, WITH REFERENCE ESPECIALLY TO LABORATORY METHODS.

Dr. B. A. Thomas: The paper is a discussion of merely the more important advances diagnostically and therapeutically that have marked the progress in recent years of genitourinary surgery from the laboratory and endoscopical standpoints. The urogenital system is considered in turn under its anatomical parts,—the urethra, the prostate and seminal vesicles, the vasa deferentia epididymites and testicles, the bladder, the ureters and the kidneys, with an appendix delegated to syphilis. Irrespective of the routine bacteriological and cytological examination of every urethral discharge there should be an imperative obligation to investigate immediately, definitely and precisely the source of any urethral discharge, whether blood or pus, not known absolutely to originate from the urethra. The seven glass test is of value in the absence of the cystoscope and urethroscope. The differential diagnosis between gonorrheal and non-gonorrheal inflammation of the urethra rests ultimately upon bacteriological study. The eosin-azur stain in my opinion, is most meritorious. In the future it seems logical to infer that more may be expected of the gonococcus complement-fixation test gynecologically and also relative to cure and the matrimonial fitness of candidates. Therapeutically, in acute chronic gonorrheal urethritis and in the common complications other than synovitis and arthritis, the gonococcus bacterin has proved of little or no value, although we are as yet unprepared to express final opinion as to its possible value in lessening stricture formation. In joint complications and vulvovaginitis of children it has been signally meritorious. I believe its failure in the treatment of prostatitis, seminal vesiculitis and epididymitis is because these complications are almost invariably the result of superimposed mixed infection. Antigonococci serum, prepared in accordance with the work of Rogers and Torrey for the treatment of synovitis or arthritis and systemic gonorrheal involvement is the remedy par excellence. It has been my experience that much may be expected from the proper employment of autogenous bacterins in many cases of suppurative prostatitis and seminal vesiculitis. In disease of the vas, epididymis or testicle, laboratory methods, other than the histopathological, have little to offer with respect to the diagnosis and treatment of affections of these organs. With the use of tuberculin diagnostically I have never been misled. The bladder may be regarded as the bureau of information for tuberculosis of the urogenital system. The cystoscope is the invention that has accomplished most in urology. Of the many types, my preference is for the water cystoscope constructed on the evacuation-irrigation principle with the indirect vision lens and prism system. Primary disease of the ureter very rarely occurs. Usually the lesion is secondary to some renal, vesical, urethral or extra-ureteral condition. Of the many devices for the detection of stone in the ureter, the best is the wax-tipped ureteral catheter or bougie. Certain conditions, as pyelitis, with or without cystitis, and pyonephrosis, have presumably been cured with autogenous bacterins, always, however, in conjuction with other well recognized measures of merit. Tuberculin is useful diagnostically and therapeutically in tuberculosis of the kidney.

The treatment of syphilis at present is purely empirical. We have, however, in Ehrlich's preparations the promise of remedies of paramount importance.

Book Reviews.

Pathfinders in Medicine. By Victor Robinson. New York: Medical Review of Reviews. 1912.

This volume is a collection of the author's biographic essays in medical history. The subjects of these sketches are well chosen,—Galen, Aretaeus, Paracelsus, Servetus, Vesalius, Paré, Scheele, Cavendish, Hunter, Jenner, Laennec, Simpson, Semmelweis, Schleiden, Schwann, and Darwin,—and the subject-matter is inevitably interesting. Of the style of presentation, however, not so much can be said: its flamboyance simulates the eccentricities of some modern English playwrights and novelists without imitating their genius. In the beginning of the volume is printed the facsimile of a letter to the author from Haeckel, to whom the work is dedicated. His simple phrase is the sincerest and truest expression in the book:—

"Wenn ich diese hohe Distinction in Bescheidenheit annehme, kann ich es nur damit rechtfertigen, dass ich seit 60 Jahren ernstlich bestrebt war, die Erkenntniss der *Wahrheit* in der Medizin zu fördern."

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., and F. F. Burghard, M.S. (Lond.), F.R.C.S. New edition, entirely revised and largely rewritten, with the assistance of T. P. Legg, M.S. (Lond.), F.R.C.S., and Arthur Edmunds, M.S. (Lond.), F.R.C.S. In five volumes. Vol III. Philadelphia and New York: Lea and Febiger. 1912.

The first two volumes of this new, revised edition were reviewed in the issue of the Journal for July 25, 1912 (Vol. clxviii, p. 130). This third volume, which deals with "the treatment of the surgical affections of the joints, the spine, the head and the face," is illustrated with 271 plates. Its text maintains the merit of its predecessors, and is promise of continued excellence in those which are to follow.

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STERILIZATION OF THE UNFIT.

IN previous editorials we have repeatedly called attention to the growing menace of the feeble-minded. We have always advocated every reasonable plan for the elimination of these defective strains from the general mass of the population. Segregation in institutions, more rigid examination of immigrants, with a view to keeping out the alien defectives, careful examination and grading of school children, and the establishment of classes for the backward and feeble-minded, are some of the many plans to which we have given our cordial support. One far-reaching scheme, which if feasible would probably carry with it the most satisfactory results of all, we have heretofore left almost unmentioned in our columns. We refer to sterilization. There are so many reasons, sentimental and moral, which might possibly be advanced as valid objections to such a plan that we have been slow to espouse the cause of those ultra-eugenists who would treat the human race exactly as the animal breeder does the stock which he wishes to make physically perfect. However, it would seem that public opinion is rapidly approaching the view point of the animal breeder, and if the lay mind is ripe for such drastic measures we see no reason for the scientists to object. Eight States have already passed laws which provide in some form or other for the sterilization of certain criminal and feeble-minded persons. These States are Indiana, Washington, California, Connecticut, Nevada, Iowa, New Jersey and New York. In some other States legislation is pending with the same general end in view. Indiana has probably given the scheme the most thorough trial of all, for at the Jeffersonville Reformatory there have been, in all, about three hundred vasectomies performed upon confirmed criminals. The New Jersey State law is the most carefully planned of all. It aims to avoid abuse at the same time that it lends itself to scientific research, and provides for the sterilization of practically all those feeble-minded males whose confinement in institutions would be unnecessary were it not for the sole danger of procreating their kind. However, the law has been in effect only a short time and its workings are not yet assured.

In an editorial in the *Lancet Clinic* for March 8, 1913, Colonel Gorgas is quoted as advising the sterilization of the lepers in the colonies where they are segregated. He points out the fact that these persons naturally contract common law marriages and that no legislation can prevent the birth of children in leper colonies. In the Philippine settlement there are on an average fifty births a year. This means that just so many children are brought into the world under the most unfavorable conditions imaginable. It is easy to see how vasectomy would serve to reduce this evil, at the same time that it made the already hard lot of the leper more endurable.

The *Lancet Clinic*, commenting upon the stage of public opinion in regard to such measures, makes the statement that the sterilization of the feeble-minded would be eagerly welcomed by the masses. There are supposed to be something over 300,000 feeble-minded in institutions in the United States. Besides these there must be many more whose existence is unknown.

Davenport has estimated that segregation alone would, in the course of thirty years, serve so to reduce the number of the feeble-minded and insane, that the greater part of our institutions for these classes could be sold or turned over to the State for other purposes. But the segregation of all feeble-minded of all the various grades would be an immensely expensive undertaking. It would seem that the most practical plan should combine segregation and sterilization.

An argument advanced by some moralists against the plan of vasectomy is that libertinism would thereby be increased. They say that an operation which would remove danger of procreation at the same time that it left all the

natural desires, would necessarily be conducive to an increase in sexual immorality and the spread of venereal disease. It is possible that this argument would have some weight when applied to the criminal classes or to those afflicted with grave hereditary physical defects or diseases, like leprosy. It is, however, without weight when applied to the feeble-minded, because the feeble-minded have no sex control anyway, and vasectomy would make them neither better nor worse in this respect. Every one at all acquainted with the subject knows that the fear of offspring or the contraction of disease never enters the mind of the mentally defective.

Another argument advanced against the practice is that it is unconstitutional, because it would be inflicting a cruel and unusual punishment. But in the case of the feeble-minded this could not hold good because in no sense could it be construed as a punishment in their case. As a treatment for confirmed criminality, the Supreme Court in the State of Washington has already decided that the law is constitutional.

Some undetermined problems in relation to this question have to do with the effect of the operation upon the mind and body of the individual himself. Even so simple an operation as vasectomy has been held by some to work deleterious effects upon the metabolism of the individual upon whom it is performed, and to change his mentality for the worse. If this is true it would be an argument against its practice upon criminals and those suffering from grave inheritable physical disorders. But it would only be one argument, and it is at least an open question whether the harm to the individual would not be greatly outweighed by the benefit conferred upon the community.

In the case of the feeble-minded this argument would have almost no weight, because their mentality is not capable of being seriously lowered by any process or treatment, and the only debt which the community owes them is to make them as happy and comfortable as possible, so far as can be done without detriment to others.

Any arguments which might be validly urged against the practice of the sterilization of all the unfit, including the confirmed criminal, and the sufferer from diseases like leprosy, do not appear to have equal weight when applied solely to mental defectives. These have no debt which they owe society, because they are incapable of discharging the debts of the normal individual. They cannot be reformed of their bad habits because they are incapable of reform. It seems almost self evident that any plan which does not make the individual feeble-minded person seriously ill or unhappy would be justifiable in ridding the race of his defective blood.

THE PHIPPS PSYCHIATRIC CLINIC.

The formal opening exercises of the Phipps Psychiatric Clinic of the Johns Hopkins University Hospital will be held at Baltimore, Md., on Wednesday of next week, April 16. On this occasion "addresses will be given by Sir William Osler and Professor William McDougall, of Oxford; Frederick W. Mott, F.R.S., of London; Professor Heilbronner, of Utrecht; Professor Bleuler, of Zurich, and Professor Orovino Rossi, of Italy."

The Phipps Psychiatric Clinic was established in June, 1908, with an initial gift of $650,000, by Mr. Henry Phipps, of Pittsburg, Pa. The letter in which he offered this endowment states admirably the purposes and needs of such an institution:—

"I understand that there is urgent need in this country in connection with university medical schools and their hospitals, for institutions similar to those known as psychiatric institutes, to provide for the better care of patients suffering from mental disease, especially in its earlier and often curable stage, under conditions similar to those of a general hospital.

"Since patients may enter such an institution without the formality of a commitment, and without the stigma which is popularly thought to pertain to admissions to an asylum for the insane, experience has demonstrated that many may be rescued from permanent insanity by early treatment in an institution of this character. A psychiatric clinic, as thus understood, should also afford much needed opportunities for the instruction of medical students and physicians in this important field of medicine, and should be equipped with laboratories for the scientific investigation of the nature, cure and prevention of mental diseases.

"It gives me pleasure to offer to the Johns Hopkins Hospital the funds necessary for the erection and equipment of a psychiatric hospital on its grounds, to be administered as part of the hospital, in accordance with the plans and estimates that you have submitted, the institution to provide for about ninety patients and to contain the necessary laboratories and other facilities, and, furthermore, to offer to the Johns Hopkins University additional funds for the

establishment of a professorship of psychiatry and the assistantships thereto, the professor to be also the director of the psychiatric hospital.

"I have arranged to provide for the maintenance of the hospital and of the professorship for a period of ten years from the time of the opening of the hospital. It is my desire that, in the admission of the patients to the hospital, preference should be given to applicants from Baltimore and from those cities with which my life and work have been so closely associated—Pittsburg, Philadelphia and New York.

"It is my hope and expectation that the psychiatric clinic thus founded may serve as an example of what such institutions should be and prove to be a stimulus to the establishment of similar hospitals and professorships elsewhere."

The director of the clinic will be Dr. Adolf Meyer, professor of psychiatry in Johns Hopkins University.

MR. MORGAN AS A MEDICAL BENEFACTOR.

THE recent death of Mr. John Pierpont Morgan on March 31, at Rome, recalls that it was he who in June, 1902, gave $1,500,000 to make possible the erection of three of the present new buildings of the Harvard Medical School, as a memorial to his father. This was not the only one of his generous medical benefactions. Among the many qualities that made him a distinguished and honored man, Mr. Morgan deserves to be gratefully remembered also as a munificent patron of medical education and science.

MEDICAL NOTES.

THE SHEPPARD AND ENOCH PRATT HOSPITAL.—The Trustees of the Sheppard and Enoch Pratt Hospital, Towson, Md., are planning to celebrate the sixtieth anniversary of the granting of the charter for the institution. While the hospital has been receiving patients for but twenty-one years, it was incorporated and the Board of Trustees were named May 24, 1853, Moses Sheppard, the founder, being the first president of the Board. It is expected that the celebration will be held either just before or just after the Congress of American Physicians at Washington.

LONDON DEATH-RATES FOR FEBRUARY.—Statistics recently published indicate that the total death-rate in London during the month of February, 1913, was 19.0 per 1000 inhabitants. Among the several districts and boroughs, the highest rate was 26.4 in the old city of London; the lowest was 13.1 in Lewisham, an open southern suburb.

GERMAN CONGRESS OF MEDICINE.—The thirtieth annual meeting of the German Congress of Medicine will be held on April 15 to 18, at Wiesbaden.

"The principal subject proposed for discussion is the nature and treatment of fever. The discussion will be introduced by Drs. von Krehl of Heidelberg and Hans H. Meyer of Vienna. At the request of the Organizing Committee, Professor Schittenhelm of Koenigsberg will deliver an address on the relations between anaphylaxis and fever."

A PERSISTENT MEDICAL STUDENT.—Report from Paris on March 29 describes the death of a man, at the age of 57, who for 37 years had studied medicine at the University of Berne, but had never succeeded in passing the examinations for his degree. His zeal and tenacity of purpose may have been laudable, but it would seem that any one who could not get a medical degree in 37 years had better have turned his energies to some more profitable occupation.

A FRENCH TYPHOID CARRIER.—Report from Paris on March 29 describes the recent discovery of a typhoid carrier in Colmar, Alsace, to whom 14 cases of the disease were traced. The patient was a stenographer. She was arrested and is now under treatment at the Pasteur Institute.

INCIDENCE OF DIABETES IN PARIS.—Statistics recently compiled by Dr. Jacques Bertillon of Paris indicate that in that city diabetes occurs chiefly among the professional classes, lawyers, physicians, and clergymen showing the greatest frequency of incidence.

AMERICAN DOCTORS IN THE BALKANS.—Report from Belgrade, Servia, states that on April 2, eight American physicians arrived in that city to undertake Red Cross relief work among the Balkans.

SPANISH HONOR FOR AMERICAN PHYSICIANS.—Report from Madrid, Spain, on April 2, states that King Alfonso, upon the recommendation

of Dr. Vicente Llorente, the Spanish court physician who recently visited the United States, has appointed as knights of the Royal Order of Isabella the following New York physicians: Dr. Alexis Carrel, of the Rockefeller Institute; Dr. H. M. Biggs, of the Department of Health; Dr. William H. Park, of the Research Laboratory of the Department of Health; Dr. John W. Brannon, of Bellevue and Allied Hospitals; and Dr. Hideyo Noguchi."

STERILIZATION OF DEFECTIVES IN MINNESOTA.—Report from St. Paul, Minn., states that on April 1 the House of Representatives of the State Legislature passed, by a vote of 61 to 45, a bill providing for the sterilization of defectives, habitual criminals, and degenerates.

EPIDEMICS FOLLOWING RECENT FLOODS.—The destructive floods, which have prevailed recently in many States, have been followed in several instances by disturbances of hygienic and sanitary conditions, which have resulted in epidemics of disease. At Peru, Ind., smallpox and diphtheria broke out among refugees in the local court house, which was thereupon turned into a quarantine station. A focus of smallpox on March 26 appeared at Eastport, Anne Arundel county, Maryland. At Albany, N. Y., the local filtration plant has been inundated, and typhoid fever is said to have broken out, owing to removal of protection of the water supply.

A CENTENARIAN.—Mrs. Cornelia Holleman, who died recently at Raleigh, N. C., was locally reputed to have been born in 1812.

FEDERATION OF STATE MEDICAL BOARDS.—At the first annual meeting of the newly organized Federation of State Medical Boards of the United States, recently held in Chicago, Dr. Charles H. Cook, of Natick, Mass., was elected president.

BOSTON AND NEW ENGLAND.

PSYCHOPATHIC HOSPITAL LECTURES.—A series of eight lectures upon topics having psychiatric interest are being given at the Psychopathic Hospital on Monday afternoons during April and May, from five to six p. m. These lectures are open to physicians and to third and fourth year medical students. Others desiring the privilege should apply to Dr. H. M. Adler, Chief of Staff of the Psychopathic Hospital, 74 Fenwood Road, Boston.

LECTURES.

Monday, April 7. Introduction by Dr. Walter Channing, Chairman of the Trustees of the Boston State Hospital. "On the Nature of Delusions," by E. E. Southard, Director of the Psychopathic Hospital.

Monday, April 14. "The Meaning of the Sub-Conscious as Determined by Experimental Researches," by Morton Prince, Editor of the Journal of Abnormal Psychology.

Monday, April 21. "Anabolic and Catabolic Processes in the Nervous System and Their Bearing on the Theory of Neurolysis," by H. M. Adler, Chief of Staff of the Psychopathic Hospital.

Monday, April 28. "Psychotherapy from the Neurological Standpoint," by E. W. Taylor, Assistant Professor of Neurology, Harvard Medical School.

Monday, May 5. "The Neurasthenic Psychoses, with Special Reference to the Melancholia-Mania Group," by Edward Cowles, Instructor in Mental Diseases, Harvard Medical School.

Monday, May 12. "The Psychoanalytic Movement," by James J. Putnam, Professor Emeritus of Nervous Diseases, Harvard Medical School.

Monday, May 19. "The Relation of Experimental Psychology to Psychopathology," by Hugo Münsterberg, Professor of Psychology, Harvard University.

Monday, May 26. "The Social Bearings of Mental Disease," by Richard C. Cabot, Assistant Professor of Clinical Medicine, Harvard Medical School.

RECENT HOSPITAL BEQUESTS.—The will of the late Franklin P. Hyde, of Boston, which was filed on March 29 in the Suffolk probate court, contains a bequest of $5000 to the Boston City Hospital for a free bed. The Children's Hospital, Boston, is to receive one-tenth of the residuary estate.

MASSACHUSETTS SCHOOL FOR FEEBLE-MINDED.—The recently published sixty-fifth annual report of the trustees of the Massachusetts School for the Feeble-Minded at Waltham, Mass., records the work of that institution for the year

ended Nov. 30, 1912. During this period the total number of cases under treatment was 1681. The number of enrolled inmates at the close of the year was 1584, of whom 1305 were at Waverly, and 279 at Templeton, Mass.

LECTURES BY DR. MUMFORD.—It is announced that Dr. James G. Mumford, of Clifton Springs, N. Y., will lecture at the Harvard Medical School at 8.15 p. m., April 10, on "Hippocrates and Galen," and April 11, on "Vesalius and Hunter." He will also lecture at the Boston Medical Library at the same hour on April 15, on "Medical History and Ethics; and a Modern Experiment in Practise."

BOSTON LYING-IN HOSPITAL.—The recently published eightieth annual report of the Boston Lying-in Hospital records the work of that institution for the calendar year 1912. During this period 814 mothers were treated and 813 babies born in the hospital, and 1858 mothers attended and 1868 babies born in its out-patient department. Thirty-one nurses received diplomas as graduates of the training-school. During the past five years the second hundred Cesarean sections have been performed in the hospital, the statistics of the first hundred having been reported at length in the issue of the JOURNAL for Dec. 2, 1909 (Vol. clxi, pp. 803-816). Particular attention should also be called to the work of the pregnancy clinic in the supervision of mothers during pregnancy, the timely detection of pelvic and other abnormalities, and the prophylaxis of pregnancy toxemia. The report reiterates the great and pressing need of the hospital for an adequate and modern building and equipments.

SMALLPOX IN FALL RIVER.—Report from Fall River, Mass., on April 1, states that three cases of smallpox have recently been discovered among mill operatives in that town, many of whom have in consequence been vaccinated by local health officers.

HOSPITAL CONCERTS FOR APRIL.—The concerts of the Boston Hospital Music Fund for the month of April, 1913, have been announced as follows: On April 13, at St. Monica's Home, Roxbury; on April 17, at the Carney Hospital, South Boston; on April 20, at the Helping Hand Home, Jamaica Plain; on April 25, at the Home for Crippled Children, Hyde Park; and on April 27, at the Boston Home for Incurables, Dorchester.

COMMONWEALTH DENTAL SOCIETY.—The annual meeting and dinner of the Commonwealth Dental Society will be held at the Revere House, Boston, on Thursday evening, April 10.

SUCCESSFUL CANDIDATES IN DENTISTRY.—Of the 42 candidates who appeared before the Massachusetts State Board of Registration in Dentistry on March 5, 6 and 7, 22 were successful in passing the examination, and have received certificates entitling them to practise their profession in this State.

FINE FOR ILLEGAL PRACTISE OF MEDICINE.—On March 31, a resident of Fall River, Mass., was fined $100 before the local police court for attempting to practise medicine illegally.

NEW YORK.

REPORT OF NEW YORK MILK COMMITTEE.—One of the most interesting features of the sixth annual report of the New York Milk Committee, just issued, is a detailed account of an experiment in practical eugenics made during the past year. Six tenement districts in the city were selected, and, at the milk stations in these, expectant mothers were asked to register with a nurse in charge, who then visited the women in their homes from time to time and gave them instructions as to the care they should take of themselves during pregnancy and the nursing period. This supervision was maintained for at least one month after the birth of their children, and the report states that among the infants of 1,375 women thus looked after the mortality was nearly one-third less than among infants of corresponding age in general in the Borough of Manhattan.

DEATH OF A TUBERCULOUS PATIENT.—The death of a patient at Bellevue Hospital three days after being injected by Dr. Friedmann (as noted editorially in last week's issue of the JOURNAL) would seem to have no bearing upon the general problem presented by the latter's treatment, as one of the man's kidneys had been removed, the other, it is stated, was tubercular, and he was practically in a dying condition at the time. Considerable surprise has been ex-

pressed, however, that Dr. Friedmann should have been willing to accept so hopeless a case for the employment of his method.

Work of Pellagra Commission.—It was announced on March 31 that Col. Robert M. Thompson, of New York City, and Mr. John M. McFadden, of Philadelphia, who last year together contributed $15,000 towards the work of the National Pellagra Commission, have this year again undertaken to supply funds for the continuance of that work. The Commission, whose headquarters are at the New York Post-Graduate Hospital, left this city last week to take up field quarters in Spartanburg, S. C.

Craig Colony for Epileptics.—The recently published nineteenth annual report of the Craig Colony for Epileptics at Sonyea, Livingston County, N. Y., records the work of that institution for the year ended on Sept. 30, 1912. During this period 227 new patients were admitted and 229 cases discharged, leaving a total of 1418 inmates, a number which far exceeds its legitimate capacity. Of those discharged only four were considered as recovered. The training school has been reorganized with a view to increasing its efficiency and value in the education of nurses. The pathologist's report contains the interesting record of 70 autopsies performed during the year, illustrated with several brain-plates.

Hospital for Crippled and Deformed Children.—The recently published twelfth annual report of the New York State Hospital for the Care of Crippled and Deformed Children records the work of that institution for the year ended Sept. 30, 1912. During that period 103 patients were treated, of whom 24 had tuberculosis of the hip and 15 of the spine. The total number of days of hospital care was 22,706. The hospital is urgently in need of enlarged quarters.

Adirondack Cottage Sanatorium.—The recently published twenty-eighth annual report of the Adirondack Cottage Sanatorium at Saranac Lake, N. Y., records the work of that institution for the year ended Oct. 31, 1912. During that period 312 patients were treated, of whom 35 were discharged as apparently cured and 98 with the disease arrested. The year has been marked by the completion of the new nurses' home and the establishment of a regular two-years' training-school course. A medical supplement to the report tabulates and summarizes the statistics of the 3281 patients who have been treated at the sanatorium since its foundation. Of these, 54% are still living.

Current Literature.

Medical Record.

March 15, 1913.

1. *Abbe, R. *Malignant Disease of the Tongue and Mouth.*
2. Williams, T. A. *Occupation Neuroses. Their True Nature. Treatment.*
3. Rosenstein, J. *The Municipal Clinic of San Francisco.*
4. Copeland, E. P. *Tuberculosis in Early Life.*
5. Sabella, N. *Use of the Fetal Membranes in Skin Grafting.*

1. Abbe writes an interesting and valuable paper on malignant disease in the mouth. Thorough surgery, he says, is still the supreme reliance here. Radium has cured cases, but in advanced cancer its good effect is transient; in giant-cell sarcoma, however, it is a specific cure. The vicious causative effect of tobacco is proved. [L. D. C.]

March 22, 1913.

1. Von Ruck, R. *The Relative Value of Living or Dead Tubercle Bacilli and of Their Endotoxins in Solution in Active Immunization Against Tuberculosis.*
2. *Kosmack, G. W. *Radical and Conservative Methods in Obstetric Treatment.*
3. Russell, J. F. *The Treatment of Lime Starvation.*
4. Sicard, M. H. *Further Experience with the High Calory Diet in Typhoid Fever.*
5. Fussell, M. H., and Leopold, S. *Gradually Developing Hemiplegia Due to a Cerebral Neoplasm.*
6. Vinton, M. M. *State Care for Mental Defectives.*
7. Robinson, B. *The Medical Treatment of Appendicitis.*

2. Kosmak discusses, from both the conservative and radical standpoints, some of the commoner obstetric problems. His remarks on eclampsia are especially noteworthy. He cites the results of Lichtenstein in Leipsig with expectant treatment for this condition. During the last twelve months in which the conservative treatment was employed, not a single eclamptic mother died in a series of sixty consecutive cases. Spontaneous labor occurred in two-thirds of the cases. Expectant treatment consists of venesection, purging, sweating, sedatives (morphine and chloral), water by mouth and rectum, and nitroglycerin. [L. D. C.]

New York Medical Journal.

March 15, 1913.

1. Gordon, W. S. *Acidosis.*
2. *Rosenberger, R. C., and Dorworth, C. V. *Blood and Sputum in Croupous Pneumonia.*
3. Darney, V. *Connection of the Sexual Apparatus with the Ear, Nose and Throat.*
4. Oppenheim, S. *Disease of the Nasal Accessory Cavities.*

5. PORTER, W. H. *Uric Acid Calculi.*
6. WILE, I. S. *Medical Efficiency.*
7. NEUHOF, S. *Extrasystoles.*
8. MARTIN, E. H. *The Specific Treatment of Pellagra.*
9. GROEDEL, I. M. *Carbonated Baths.*
10. MCDUFFIE, M. W. *Tuberculosis.*
11. KLEIN, S. R. *Whooping Cough.*
12. SCHATZ, H. A. *Appendicitis or Not Appendicitis?*
13. CONKLIN, E. G. *The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence.*

2. Rosenberger and Dorworth made a clinical study of the blood and the sputum in croupous pneumonia. They find that the sputum in this disease contains numerous micro-organisms, and that before the crisis there is no preponderance of pneumococci over streptococci, micrococcus catarrhalis and pyogenic cocci. The characteristic rusty sputum was obtained in only 42% of their cases. The finding of pneumococci in blood cultures after the crisis is rare. In some cases clinically croupous pneumonia organisms other than the pneumococcus were found in the blood. The prognosis of uncomplicated lobar pneumonia is not, in their opinion, altered by obtaining the pneumococcus in culture. [L. D. C.]

MARCH 22, 1913.

1. KNOPF, S. A. *Artificial Pneumothorax.*
2. LAPHAM, M. E. *Artificial Pneumothorax.*
3. GRAD, H. *Shortening the Uterosacral Ligaments.*
4. CORIAT, I. H. *Homosexuality.*
5. KARPAS, M. J. *Psychic Constitutional Inferiority.*
6. *KAUFMAN, J. *Experiences with Neosalvarsan.*
7. OVERLOCK, S. B. *Surgical Catharsis.*
8. KENNEDY, J. W. *Removal of Mucocele of Appendix.*
9. SMITH, R. K. *Therapeutic Possibilities of Manual Adjustment.*
10. PENDEXTER, S. E. *Unconscious Impairment of Vision.*
11. WESSON, M. B. *Epidemic Cerebrospinal Meningitis.*
12. REED, H. S. *The Effect of Diplodia Zeae and Some Other Fungi upon Some Phosphorus Compounds of Maize.*

6. Kaufman reports results with neosalvarsan given intramuscularly. He finds that one injection is not curative and he is giving his patients three injections at monthly intervals and following these with a series of salicylate of mercury injections. Neosalvarsan, he says, is quite as potent as salvarsan. When given intramuscularly its effects are far more lasting than when given intravenously, but not so rapid. With aseptic technic there is no danger whatever of abscess or necrosis. Pain attending intramuscular injection is not constant and is not a valid objection to the method. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MARCH 22, 1913.

1. *MORSE, J. L. *Sterilization, Boiling and Pasteurization of Milk.*
2. BRYANT, W. S. *Opportunities for the Preservation of Hearing.*
3. *BERG, A. A. *The Influence of Gastro-Enterostomy on Gastric and Duodenal Ulcers.*
4. CHISHOLM, A. S. M. *Theory and Practice of Medicine During the Seventeenth Century. (Concluded.)*
5. CORPER, H. J., DEWITT, L. M., AND WELLS, H. G. *The Effect of Copper on Experimental Tuberculous Lesions.*
6. MILLS, H. P. *Pellagra: Pathology of Gastro-Intestinal Tract.*
7. CONNELL, K. *A New Ether Vaporizer. Technic of Insufflation Anesthesia.*
8. CHILD, C. C. *Perineorraphy with the Figure-of-Eight Suture.*
9. SMITH, C. *The Congenital Absence of Ribs: Report of Case with Complete Absence of the Left Seventh and Eighth Ribs.*
10. HADDEN, D. *A Visceral Depressor.*
11. KAHN, L. M. *A Visceral Depressor for Use in Closing Laparotomy Wounds.*
12. KILGORE, E. S. *A Suction Hand-Valve for Clearing the Operative Field.*
13. BATES, L. B. *Leishmaniosis (Oriental Sore) of the Nasal Mucosa.*
14 LITTLE, H. C. *A Spectacular Case of Lipomyxoma.*
15. CONLON, F. A. *Infection of Pharynx by the Aspergillus Niger.*
16. BIXBY, E. M. *A Useful Lampstand Attachment.*

1. Morse states that the boiling and proper pasteurization of milk destroy the ordinary non-spore-bearing pathogenic micro-organisms. The bacterial growth is the same in pasteurized milk as in clean raw milk. The evidence at present available is insufficient to show whether cooked milk is more or less digestible than raw milk; whether babies thrive on it as well as on raw milk; and whether or not it predisposes to the development of diseases of nutrition. Granting that the cooking of milk does make it somewhat less digestible, and that its continued use does predispose to these diseases, it is evident, nevertheless, that the disturbances which it causes are slight and insignificant in comparison with the diseases caused by milk contamination with bacteria. All milk, except the cleanest should, therefore, be cooked before being used as a food for infants.

3. Berg believes that simple gastro-enterostomy can influence pyloric or duodenal ulcer only when there is an attendant pyloric spasm. In the absence of spasm all the food passes through the patent pylorus, even though a gastro-enterostomy is present; so that the ulcerated area is not protected from trauma. The reflux of duodenal contents into the stomach is a natural attendant on gastro-enterostomy and serves to alleviate the distressing symptoms of hyperacidity; but it does not favor the healing of the ulcer. Gastro-enterostomy will not protect against a recurrence of ulcer. Barring the question of malignant degeneration of a healed or healing ulcer, excision of the ulcer has no particular merit over a gastro-enterostomy toward preventing recurrence or recrudescence. Pylorectomy does protect against recurrence, but has a higher mortality. Gastro-enterostomy with pyloric exclusion favors the healing of the ulcer and has the same value in preventing recurrence as has pylorectomy, with the great advantage over the latter of a very low mortality. [E. H. R.]

MARCH 29, 1913.

1. GORGAS, W. C. *Sanitation on the Canal Zone.*
2. KAHN, M. *Gunshot Wounds of the Abdomen.*
3. *HAUZLICK, P. J. *A Study of the Toxicity of the Salicylates Based on Clinical Statistics.*
4. FISHBERG, M. *Autoserotherapy in Serofibrinous Pleurisy.*
5. MCMORROW, F. *Some Old Pelvic Inflammatory Diseases, Their Non-Surgical Treatment with Report of Cases.*
6. BOLDT, H. J. *How We May Reduce the Mortality from Cancer of the Uterus, with Special Reference to Treatment and to Publicity Through the Lay Press.*
7. BRADY, J. M. *Report of a Case of Pneumococcus Meningitis with Normal Cerebrospinal Fluid.*
8. STERN, M. *The Grafting of Preserved Amniotic Membrane to Burned and Ulcerated Surfaces Substituting Skin Grafts.*
9. BEVAN, A. D. *Medical Education and the Hospital.*

10. Niles, G. M. *The Philosophy of Mastication.*
11. Pottenger, F. M. *Spasm of the Lumbar Muscles.*
12. Kaufmann, L., and LeBreton, P. *A Case of Spastic Paraplegia, with Dorsal Root Section for Pain and Spasticity.*
13. Neustaedter, M. *Poliomyelitis in Guinea-Pigs.*
14. *Wetherill, H. G. *The Growth, the Death and the Regeneration of Bone.*
15. Hand, P., White, C. Y., and Reichel, J. *A Case of Hydrophobia.*
16. *Dixon, S. G. *The Bronchial Forms of the Tubercle Bacillus and Immunity to Tuberculosis.*
17. Rogers, J. B., and Murphy, A. I. *The Finding of the Acid-Fast Bacilli in the Circulating Blood.*

3. Hauzlick states that the mean toxic doses of the different salicylates for adult males and females, respectively, are 180 and 140 grains of the synthetic sodium salicylate, 200 and 135 grains of the natural sodium salicylate, 120 minims of the oil of gaultheria, 165 and 120 grains of acetysalicylic acid (aspirin) and 100 and 83 grains of salicylosalicylic acid (Diplosal). This toxic dose is practically the same in various diseased conditions. The therapeutic response in various diseased conditions does not modify the toxic dose of the synthetic salicylate.

4. Fishberg, following Gilbert of Rome and the experimental data of Eisner, has found the subcutaneous injection of 2 to 5 c.c. of fluid from a tuberculous pleurisy, immediately after its removal from the chest, of value in the treatment of these cases. Symptoms and physical signs both improve rapidly. The author recommends strongly that this treatment be given further extended trial. No outward symptoms have ever developed.

14. Wetherill goes into an interesting discussion of MacEwen's new theory of bone regeneration and growth, which the latter believes takes place wholly independent of the influence of periosteum. The article does not lend itself to easy abstracting, but is well worth reading.

16. Dixon describes the branched form of the tubercle bacillus, which has a reduced virulence and has produced a marked degree of immunity in lower animals. [E. H. R.]

Annals of Surgery.

December, 1912.

1. *Wilson, L. B. *Fatal Post-operative Embolism.*
2. Cunningham, Jr., J. H. *Acute Unilateral Hematogenous Infection of the Kidney.*
3. *Cobb, F. *The Management of the Grave Emergency Cases of Extra-uterine Pregnancy.*
4. Walker, J. B. *Operative Treatment of Fractures.*
5. Rixford, E. *Contribution to the Etiology of Congenital Dislocation of the Hip.*
6. Bendell, J. L. *Bone Plating in Irreducible Fracture of the Clavicle.*
7. Russell, J. I. *Traumatic Separation of the Lower Epiphysis of the Femur.*
8. Elliott, G. R., and Sachs, E. *Observations on Fracture of the Odontoid Process of the Axis with Intermittent Pressure Paralysis.*
9. Corson, E. R. *Mediotarsal Subluxation as Shown by the X-ray.*
10. Thornburgh, R. M. *Multiple Gunshot Wounds of the Intestine without Perforation of Lumen.*
11. *Black, C. E. *Displacement of the Colon.*
12. Wiener, J. *Gangrene of Ileum Complicating Appendicitis.*
13. Remsen, C. M. *Appendicitis in an Infant Sixteen Days Old with Appendix in an Inguinal Hernia Sac.*
14. Council, M. D. *Primary Sarcoma of the Spleen.*
15. Jopson, J. H. *Bevan's Operation for Undescended Testicle.*
16. Ford, C. S. *Traumatic Femoral Aneurysm Cured by Matas' Method of Endo-aneurysmorraphy.*

1. Wilson analyzes the cases (47) of fatal post-operative embolism which occurred at St. Mary's Hospital from Sept. 13, 1899, to Dec. 31, 1911. The ten years prior to this period were without a single death from this cause. The reasons given are a higher percentage of certain types of operations and of cases admitted in extremis during the last twelve years. Total of 63,573 operations, with 0.07 of one per cent. mortality from embolism. The highest incidence was in operations on the prostate (0.60%), the lowest in operations on the appendix (0.04%). Between these two limits the order of incidence from lowest to highest is as follows: operations on mouth, on thyroid, on kidney, on hernia, on stomach or duodenum, on uterus, tubes and ovaries, on blood vessels, on gall bladder and on colon and rectum. There were none in 449 vaginal hysterectomies, but 5 in 1712 abdominal hysterectomies. Of 41 which came to autopsy, 36 were pulmonary, 10 cerebral and 1 coronary; 41 of the 47 were all very ill and probably subjects of low-grade bacteriaemia. Venous thrombosis was determined as source of emboli in 80%, cardiac thrombosis in 10%; miscellaneous or undetermined in 10%.

Statistical and clinical details are presented in two tables. Reduction to minimum of operative vascular traumatism, encouragement of very early free movement on part of patient, and measures toward reduction of bacteriaemia (destruction of local infective foci and preliminary vaccination) are suggested as preventive measures. Much judgment is required for determination of time patient should be permitted to get up. Quiet recumbent posture retards the circulation and favors thrombosis. If from anemia or bacteriaemia there is a suspicion that extensive thrombi have already formed before it is possible to permit the patient free movement, it is wise to continue the recumbent position to prevent dislodgement of emboli.

3. Cobb's contribution is based upon a study of 137 cases of extra-uterine pregnancy which occurred at the Massachusetts General Hospital from 1902 to 1910. There were 3 cases of interstitial pregnancy; 2 of these were personal cases. There were 36 desperate emergencies (including 8 personal cases). All were operated upon practically as soon as seen by the surgeon. The immediate mortality was only 5.5%. He believes that such cases should be operated upon at once. Ether should be started on the operating table, but not until everything is ready for the operation, including an intravenous salt infusion equipment, the preparation of the abdomen, and the exposure of the median basilic vein under cocaine by an assistant. Trendelenburg position with beginning of ether relaxation, clamping of ovarian arteries without attempting to evacuate blood and clots followed at once by starting salt infusion and giving strychnia. Cleansing of abdominal cavity with hot salt solution, double ligation and removal of tube, closure with through-and-through sutures without drainage. Steps should at once be taken to secure a donor for transfusion, since a very small number of cases do not respond to the usual after-treatment for hemorrhage. He says it is the duty of every practitioner to remember that the vast majority of the most serious cases (those most likely to go to a rapid fatal termination from hemorrhage) occur in young primigravidae, that there may be nothing to suggest pregnancy, and that the onset may be extremely sudden and may exactly simulate some other acute abdominal condition.

11. Black has carefully reviewed the literature on displacements of the colon, gives diagrams illustrating 28 cases and describes a personal case. In his case, owing to dense adhesions throughout the right half of the abdomen, a marked abnormality was not recognized at two operations. The descending colon and sigmoid were fixed in the right lower abdomen over the ileum, which ran vertically upward to an undescended cecum. He considers abnormalities of the various portions of the large bowel. He finds great

difference of opinion in regard to the position of the sigmoid, whether normally in the pelvis or above it, and whether it joins the rectum in a direction from the left or from the right. For purposes of study he suggests a classification. True congenital anomalies seem to be easily recognized and for the most part cause no inconvenience to the patient until complicated by some acquired influence. His study does not confirm the belief of some authors that the descending colon is more commonly in its normal position than any other portion. The sigmoid may be displaced to the right before or after the descent of the cecum. In only one case did the colon not approach the spleen. [T. W. H.]

Wiener Klinische Wochenschrift.

No. 8. February 20, 1913.

1. Hamburger, F. *Psychic Treatment in Growing Children.*
2. Lederer, R. *Spasmophilic Diathesis, a Hitherto Undescribed Clinical Picture.*
3. Chiari, O. M. *A Contribution to the Knowledge of Behavior of Freely Transplanted Fascia in the Human Organism.*
4. Hess, L., and Von Frisch, B. *A Phosphate in Human Urine.*
5. Reihl, G. *The Value of Acetone-Extract in the Meiostagmine Reaction.*
6. *Köhler, R., and Luger, A. *On the Meiostagmine Reaction.*
7. Hofbauer, L. *Origin and Treatment of Chronic Disorders of the Pleura.*

6. The authors, working with their own Lecithin acetone extract, and with the statistics of Zarzycki, find the Meiostagmine reaction positive in 80% of carcinoma cases, in 2.2% of patients sick with other diseases than carcinoma, 0% in the healthy. They conclude that it is valuable and that their preparation gives the best results. They draw the following conclusions also: In pregnant women the reaction is more often positive than in the non-pregnant, so that its value is much less. Proof as to whether the reaction comes about through precipitation or complementary reaction is not important. [F. S. K.]

No. 9. February 27, 1913.

1. Hess, L., and Wiesel J. *The Action of Adrenalin in Experimental Acute Nephritis.*
2. Kraus, R., Hofer, G., Ishiwara. *The Differentiation of the Leprosy Bacillus by Means of Bacteriolysis.*
3. Steiner, J. *Army Medical Experience at the Front.*
4. Jehle, L. *On the Action of Attempts at Correction of the Spine in Orthostatic Albuminuria.*
5. Jehle, L. *So-called Marsch-hemoglobinuria.*
6. Nagy, S. *Contribution to the Diagnosis of Acute Pancreatitis.*
7. *Langer, E. *The Cammidge Reaction and Its Value in the Diagnosis of Diseases of the Pancreas.*

7. The author arrives at the following conclusions: The Cammidge reaction is not specific for pancreas disease. The reaction is not only due to the existence of grape sugar, for it occurs after boiling the urine with 20% sodium hydroxide. It also comes in healthy individuals after the assimilation of 100 gm. dextrose, as a rule, even when there is no dextrosuria. Also, if there already exists a glycosuria the Cammidge reaction fails after boiling with 20% KOH, unless 100 gms. dextrose are given before. If such patients are given 100 gms. dextrose the previously negative Cammidge reaction becomes positive, whereas in healthy individuals it is negative even after giving 100 gms. dextrose, and the appearance of dextrosuria. The substances determining the Cammidge reaction appear to be those that are formed in the breaking down and building up of the glycogen. Also, while the Cammidge reaction is negative in the experimentally produced glycosuria, it becomes positive in the adrenalin glycosuria. It seems, therefore, that for a positive Cammidge reaction there is necessary not only an increased blood sugar content, but also an increase in activity in the chromaffine system. Such increase in activity of the sympathetic nervous system may occur as a result of pancreatic disease and a falling away of the retarding action of the pancreas. And also it may occur without existing disease of the pancreas. Under certain circumstances, however, certain decomposition products of the pancreas itself may produce this reaction, even though in this case it may be impossible to differentiate the crystalline substances produced in this case from those in the above mentioned condition. [F. C. K.]

No. 10. March 6, 1913.

1. Klein, S. *The Action of Benzol in Leukemia.*
2. *Stern, S. *Treatment of Leukemia with Benzol.*
3. Schopper, K. *Experience with Cholera in Ostrumelia During the Balkan War.*
4. Ishiwara, K. *Experimental Studies of the Cell Reaction in Rats by Freund-Kaminer.*
5. March, R. *Impetigo Herpetiformis Hebra, a Contribution to the Pathology of This Disease.*
6. Teleky, L. *Isolated Atrophy of Single Muscles of the Thenar Eminence in Stone-Cutters.*

2. The author reports the following remarkable result from the use of benzol in a case of leukemia. The dose was begun at 3 gms. (in oil, in capsules), and was increased to 6 gms. per diem. At the end of two months the leucocyte count diminished from 264,000 to 13,300, the erythrocytes increased from 3½ to 5½ million. The differential count changed as follows: Myelocytes diminished from 44% to 3%, polynuclear leucocytes increased from 48% to 74%. The spleen became smaller in proportion to the improvement in the blood picture, until at the end of treatment it was normal size. In addition to these improvements the patient is stronger and the weight has increased by 2 kilos. It is too soon yet to say that this is a permanent cure. [F. S. K.]

No. 11. March 13, 1913.

1. Jonas, S. *The Behavior of Various Kinds of Strictures in the Stomach and Duodenum Under Milk Diet and a Method to Diagnose Ulcerous Spastic Strictures in the Same Places.*
2. Matzenauer, R. *Accessory Toxic Reaction of the Alkalies Liberated from the Glass During Intravenous Salvarsan Injection.*
3. Maeller, R., and Stein, R. O. *The Skin Reaction in Lues and Its Relation to the Wassermann Reaction.*
4. *Lier, W. *Experiences with Neosalvarsan.*
5. Heinz, O. *Surgical Experiences in the Montenegro-Turkish Seat of War.*
6. Barkan, H. *On Infantile and Juvenile Tabes.*
7. Homa, E. *On the Permanency of Results and the Ultimate Fate of Children Treated at the Sea-Hospital at Trieste from 1896 to 1903.*

4. The author draws the following conclusions from his experience with neosalvarsan: That on account of its solubility in neutral reactions and the ease with which it may be used it gives the best results in primary and tertiary lues, as well as in the infectious wet form of the secondary period. It appears also that prospects of a true abortive cure in primary syphilis are very good. Also in the malignant ulcerative lues it gives good results in large doses and with repeated administration, whereas in the dry forms its reaction is weaker than that of

mercury. Besides it should be used always in connection with mercury, in which case the individual neosalvarsan injection should be given at longer intervals. The first injection should be small and be preceded by only a short term of mercury treatment. Neosalvarsan seems especially indicated in those cases in which mercury leads to severe stomatitis or nephritis with albuminuria. In these cases we can use the new Ehrlich remedy without interruption of the cure. Intramuscular injection is also useful, little or not at all painful, leaves no infiltrates, and can be used in ambulatory cases. [F. S. K.]

Deutsche Medizinische Wochenschrift.

No. 9. February 27, 1913.

1. Uhlenhuth, P., Mulzer, P., and Hügel, G. *The Chemotherapeutic Action of Organic Antimony Preparations in Spirochetal and Trypanosomatous Diseases.*
2. Pal, J. *The Action of Opium, Its Components, and Substitute Preparations.*
3. Ewald, C. A. *Thrombosis of the Splenic Vein, with Fatal Gastric Hemorrhage.*
4. Dorner, G. *Broncho-Esophageal Fistula in Aortic Aneurysm.*
5. Sackur, P. *Experimental and Clinical Contributions to the Knowledge of Hormonal Action.*
6. Rothschild, D. *The Influence of Iodine Medication on the Sputum Phagocytosis of Tubercle Bacilli.*
7. Stern, C. *Autolytic Properties of Guinea-pig Serum, and Consequent Sources of Error in the Wassermann Reaction.*
8. Strümpke, G. *Combined Salvarsan-Mercury Treatment of Syphilis.*
9. Lang, J. *The Salvarsan Question in Otiatry.*
10. Hess, A. F. *Investigations on Pylorospasm and Pancreatic Ferments in the Infant by Means of a Simple Duodenal Catheter.*
11. Meyer, O. *Contribution to the Origin and Prevention of Hirschsprung's Disease.*
12. *Dschunkowsky, E. *Recurrent Fever in Persia.*

12. Dschunkowsky states that recurrent fever is the disease produced in man in Persia by the bite of the tick *Ornithodorus Tholozani* or *Canestrini*, which lives in human dwellings. The spirochetae of this recurrent fever constitute a distinct species, which he proposes to designate *Spirocheta persica*. This spirochete stands closest to the *Spirocheta Duttoni* Probably the ticks also carry the infection to sheep, in whom the disease manifests itself only in temperature elevation, and in whose organism the spirochetes live in peculiar forms yet unknown to us. Under favorable conditions they may thence be transferred to man. [R. M. G.]

Annales De L'Institut Pasteur.

December 25, 1912.

1. *Carré, H. *Contagious Agalaxy in the Sheep and Goat.*
2. *Manonelian, J. *Study of Nigri Bodies and Special Formations in Cells in Rabies.*
3. Gerard, P. J. *Contribution to the Study of Potassium and Sodium in Animals.*
4. Bertrand, G., and Mediorecanc, F. *Research on the Normal Manganese of the Blood.*
5. Nicolle, M., and Truche, C. *Second Note upon the Preservation of Soluble Toxins.*
6. Sawtschenko. *Inhibitory Action of Carbonic Acid upon Hemolysis and Bacteriolysis.*

1. This peculiar disease, with its limited distribution, has received little attention in the French literature and so Carré has reviewed the entire literature upon the subject. From his studies, which have been exhaustive not only from the historical and clinical side, but also from the experimental, he concludes that, contrary to general opinion, the breasts of animals with this disease may secrete up to their complete atrophy a fluid of equal virulence towards reproducing this disease. For contagion an open lesion is considered indispensable. The tears from an infected eye even without ulceration are virulent. The digestive tract seems to be the most likely source of absorption for the virus. The virus may be obtained in quantity by producing an experimental pleural effusion in the animals.

Serum vaccination from laboratory results opens prospects of value as a prophylactic measure against agalaxy.

2. For several years Manonelian has been studying the Nigri bodies in rabies as they occur naturally and as the result of experimentation. He has used many different preservatives and methods of staining. He gives a careful description of these bodies and shows some excellent illustrations. He concludes that these bodies are always present in natural rabies and are of the first importance in diagnosis. In rabies from fixed virus there are numerous forms which appear in the bodies and larger branches of the nerve cells. These two sets of bodies are similar in a way to the residual bodies in the testicles. [C. F., Jr.]

January 25, 1913.

1. Bertrand, G., and Mediorecanu, F. *Investigations upon the Presence and Distribution of Manganese in the Organs of Animals.*
2. *Manouélian, Y. *Investigations upon Atheroma of the Aorta.*
3. *Manouélian, Y. *Studies upon the Pathogenesis of Arteriosclerotic Changes.*
4. Pozerski, E., and Pozerski, M. *Contribution to the Study of Immunity Against the Anti-coagulating Action of Peptone.*
5. Foley, H. *Morphological Studies Upon Microfilaria in a Troop of Sharpshooters in Algiers.*
6. Schiller, I. *Presence of Staphylococci in Human and Experimental Animal Cells.*
7. Bertrand, M. D. *Influence of Alimentary Regulation Upon Formation of Indol in the Organism.*
8. Mutermilch, S. *Toxic Action of Guinea-pig Serum Mixed with Kaolin.*

2. This author has been working under Metchinkoff on experimental arteriosclerosis, and after trying the different products of intestinal putrefaction is now reporting on the results of repeated injections of staphylococcus filtrates or emulsions into rabbits, dogs and monkeys. The examination for the sclerosis has been confined chiefly to the aorta, and he feels that lesions occur in a very high percentage of the cases. (I am not convinced that the lesions described are not of the spontaneous variety.—C. F. Jr.).

3. In this paper the author attacks the problem of the cause of sclerosis from the point of view of nerves, and does some experimental work to show that injury to a nerve will cause a corresponding injury to the arterial wall supplied by that nerve. Although an interesting theory, the work does not seem to be convincing that the nerve injury calls forth the arterial lesion, as the author claims. Some illustrations accompany the work. [C. F., Jr.]

Revue de Médicine.

February, 1913.

1. Labbé, M. *The Syndrome of Acute Dehydration.*
2. *Vitry, G., and Sezary, A. *The Resorption of Cirrhotic Ascites.*
3. Goldberg, J., and Hertz, R. *The Elimination of Urinary Chlorides in Simple Polyuria and the Influence on This of Sodium Bicarbonate.*

4. CÉZARY, A., AND SALES, G. *Bacillary Elephantiasis.*
5. CONSTAING AND FELDERMAN. *Dental Erosion.*
6. *RODRIGUEZ, A. *New Views on Diabetes.*
7. DUMAS, A. *Nervous Accidents of Syncopal or Epileptiform Nature in the Course of Disturbance of Cardiac Rhythm.*

2. The authors trace the course of a case of cirrhosis of the liver that, at the expiration of some months, was considered apparently cured. The chief influence in the resorption of the fluid is supposed to be autoserotherapy. This is claimed to be most efficient in those cases in which renal permeability is well preserved. For this or for other reasons, this means of treatment is far from giving universal success.

6. Rodriguez advances some new and very interesting views on diabetes mellitus. In the first place it seems doubtful whether this disease as such actually exists. The retention of chlorides and their excretion in the urine seems to be the matter of greatest import. It is shown that a high degree of tension may cause an undue amount of cerebro-spinal chlorine content, and hence a glycosuria by counter-irritant action. According to this theory, the treatment consists of diminishing the food intake, when it is excessive, and especially the intact of chlorides. The latter treatment is indicated in those cases where the excretion of sugar is merely the sign of a chlorine intoxication. This explains the efficacy of green vegetable and potato days in the regime of treatment of diabetes. [L. H. S.]

Obituary.

JOHN SHAW BILLINGS, M.D., LL.D., D.C.L.

DR. JOHN SHAW BILLINGS, Director of the New York Library, who died March 11, in New York City, was born in Switzerland County, Indiana, April 12, 1838. He graduated from Miami University, Ohio, in 1857, and received the degree of M.D. from the Medical College of Ohio in 1860, served in the Civil War, and retired from active service, at his own request, in 1894, with the rank of Lieutenant Colonel and Deputy Surgeon-General. He filled with distinction many responsible positions. He was vice-president of the National Board of Health from 1879 to 1882; had charge of the Division of Vital Statistics of the eleventh census; was medical advisor to the board of trustees of Johns Hopkins University, and from 1891 to 1896 professor of hygiene in the University of Pennsylvania.

He was in charge of the Surgeon-General's Library from 1875 to 1883, and from then to 1895 curator of the Army Medical Museum and Library.

In 1896 he was made director of the New York Library, and it was his duty to carry into effect the consolidation of the Astor, Lenox and Tilden Libraries and arrange for their removal into the new building on Fifth Avenue, a tremendous undertaking, which he lived to see completed.

He was a frequent contributor to medical, bibliographical and sanitary literature, and whatever came from his pen bore the stamp of his great and varied knowledge and thoroughness. He was an authority on heating and ventilation, and the old Boston Medical Library on Boylston Place and the Harvard Medical School on Boylston Street had the benefit of his expert advice in regard to ventilation. Sanitation and hygiene were also subjects which claimed much of his attention.

But the thing which will always cause his name to be held in the highest esteem the world over, his literary monument, is the Index Medicus, the outgrowth from, and made possible by, the Catalogue of the Surgeon-General's Library. Before him, whatever existed in medical literature had to be searched for and dug out with the greatest expenditure of time and patience. As Weir Mitchell says, "I often remember with regret the great waste of time in my younger days when there were no great libraries and when John Billings had not indexed the medical thought of all the centuries. The enormous labor then involved no one can imagine today."

As regards the Catalogue of the Surgeon-General's Library, we can surely agree with what was well said by Dr. W. T. Gairdner of Glasgow: "I can seriously say that there is no work of the present generation that strikes me more with the idea of the stupendous and also as being animated throughout by the qualities amounting to genius than that magnificent catalogue."

A specimen fasciculus of this proposed catalogue was issued in 1876, which is a model in every respect. The first volume appeared in 1880, the first number of the Index Medicus having been published the preceding year. This was pioneer work in medical classification and cataloguing, and was beset with many difficulties, among which were the scanty appropriations by Congress of money for the purchase of books and periodicals and for clerical work and the fact that many of the cataloguers had no knowledge of medicine, so that the perseverance, expert knowledge and enthusiasm which brought the work to a successful issue may well be regarded as allied to genius.

The Index Medicus suspended publication from 1899 to 1902. Attempts made in various quarters to start similar works resulted in showing that Dr. Billings had builded so well that no substitute was possible, and, now that he has gone, the medical and scientific world should see to it that this unrivalled publication continues to receive the support which is necessary for its existence.

At the Seventh International Medical Congress in London in 1881, Dr. Billings presented a very interesting and valuable paper on "Our Medical Literature," which every medical man would do well to read.

His eminent services to medical literature were everywhere recognized, and he was the recipient of honorary degrees from many univer-

sities: M.D. from Munich, Dublin, Budapest; LL.D. from Edinburgh, Harvard, Yale, Johns Hopkins; and D.C.L. from Oxford.

Only a few months ago his able collaborator for many years and afterward his successor, Dr. Robert Fletcher, passed away at the age of 90. As joint laborers in a gigantic undertaking they lived to see their work acknowledged as one of the greatest benefits to modern medicine.

ALGERNON T. BRISTOW, M.D.

Dr. Algernon T. Bristow, of Brooklyn, N. Y., one of the most eminent surgeons and most highly esteemed members of the profession in the State, died on March 24 from septicemia resulting from a prick in the finger while performing an appendectomy at the Long Island College Hospital on March 12. The wound is said to have been so slight that, while he felt the smart at the moment and immediately washed the part with an antiseptic solution, on close examination he was unable to find any trace of it. Dr. Bristow was born in England Nov. 29, 1851, and brought to this country when four years old. He was graduated from Yale in 1873 and from the College of Physicians and Surgeons, New York, in 1876. He was professor of surgery in the Long Island College Hospital, attending surgeon to the College Hospital and St. John's Hospital, and consulting surgeon to the Bushwick, Swedish, Coney Island and Long Island State Hospitals. Among the positions which he held at various times were, president of the Medical Society of the State of New York, vice-president of the New York Academy of Medicine, and editor of the New York State Journal of Medicine. He was a valued contributor to the medical journals and one of the most popular speakers in the numerous societies to which he belonged.

JULIAN AUGUSTUS MEAD, M.D.

Dr. Julian Augustus Mead, who died of heart disease on March 30, 1913, in Watertown, Mass., was born at West Acton, Mass., in April, 1856. After receiving his preparatory education at Phillips Exeter Academy, he obtained the degree of A.B. from Harvard in 1878 and that of M.D. in 1881. After two years' study abroad he settled in Watertown, where he continued active in the practise of his profession until his death. In 1895 he was appointed a member of the Massachusetts State Board of Health, a position in which he had ever since rendered important service to the community. He also served for three terms as medical examiner for the Seventh Middlesex district. He was visiting physician at the Perkins Institution for the Blind, post surgeon to the United States Arsenal at Watertown, and for seven years surgeon to the Sixth Massachusetts Regiment. He was a member of the American Medical Association, of the American Public Health Association, of the Massachusetts Medical Society, of the Massachusetts Medico-Legal Association, of the Massachusetts Association of Boards of Health, of the Harvard Medical Alumni Association, of the Boston Medical Library, and of the Cambridge Society for Medical Improvement. He is survived by his widow, by a sister, and by two brothers, one of the latter being also a physician.

Correspondence.

SHALL THE MEDICAL DEFENCE ACT BE REPEALED?

Boston, April 3, 1913.

Mr. Editor: The Medical Defence Act was adopted by the Massachusetts Medical Society four years ago last June. It was designed to furnish counsel for those members of the Society in their defence in suits for malpractice and also to discourage such suits being brought. During this period about a dozen cases have received the attention of the Society's counsel at an expense of $1481. The annual expense of the act for the four years amounts to a little less than eleven cents for each member of the Society. While this sum would not seem to be an exorbitant drain upon the Fellows, yet the criticism has been made that the measure is not justifiable and hence should be repealed.

Having suggested this act when president of the society, and being largely responsible for its adoption, the writer is naturally anxious that it shall have a fair and thorough trial. Inasmuch as some defendants did not know of the existence of such an act during a year or more after its enactment, it is fair to conclude that a four-years' trial is not sufficient to justify a final opinion as to its value. For this reason alone it is to be hoped that the measure may be allowed to remain in force for a few years longer. As time goes on, and the members become aware of its existence, more cases may appear and the expense may increase in proportion; but unless the experience of our society is different from that of all others with which the writer is conversant, the act will not be repealed in the near future.

Very truly yours,

George W. Gay, M.D.

POLISHED RICE.

Bryn Mawr, Pa., March 21, 1913.

Mr. Editor: Does Dr. Horace Packard, in his recent communication on the subject of polished rice, really mean to encourage the idea that the eating of such rice is in itself harmful? Such seems to be the legitimate inference from his statements.

Let us not lose our heads in the matter of polishing rice; there are many much more serious questions at the door. It has been shown that certain laboratory animals experimentally fed on polished rice, practically to the exclusion of other food, develop symptoms much like those of beri-beri. It has also been shown that control animals fed on whole rice do not manifest these symptoms, and also that the symptoms may be moderated or even completely removed if the affected animals in addition to their other food receive rice bran (as removed in the "polishing") or even certain extracts from it.

On the other hand there is no evidence whatever that eating polished rice, in any quantity, *with* a good mixture of other common foods in sufficient amount is in any way harmful. If any person be foolish enough to try to sustain life on rice alone, let him

see to it that he gets whole rice; but if any one enjoys rice merely as a pleasant part of his abundant daily ration, he need not worry that polished rice will do him damage. He will not get all there is in rice but he will be none the worse for it.

Yours truly,

JOSEPH W. WARREN, M.D.

Miscellany.

SOCIETY NOTICES.

HAMPDEN DISTRICT MEDICAL SOCIETY.—The annual meeting of the Hampden District Medical Society will be held at Cooley's Hotel, Springfield, Mass., on Tuesday, April 15, at 4 p. m.

Election of officers.

Papers for the afternoon:

Some New Methods of Etherization. Dr. Allen G. Rice, Springfield, Mass.

Vagitus Uterinus. Dr. David Clark, Springfield, Mass.

Uterine Fibroids. Dr. R. H. Seelye, Springfield, Mass.

Discussion.

Dinner at 6 p. m., at expense of Society.

HERVEY L. SMITH, M.D.,
Secretary.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, April 15, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

The following papers will be presented:

Dr. H. A. Christian: "Experimental Cardiac Hypertrophy Studied by the X-ray." (15 minutes.)

Dr. Francis W. Peabody: "The Oxygen Content of the Blood in Lobar Pneumonia." (15 minutes.)

Dr. I. Chandler Walker: "Carbondioxide Absorption by the Red Blood Corpuscles in Experimental Anemia." (15 minutes.)

Dr. F. H. Verhoeff: "Parinaud's Conjunctivitis Due to a Hitherto Undescribed Filamentous Organism." (15 minutes.)

CLEAVELAND FLOYD, *Secretary.*

BRISTOL NORTH DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Winthrop Club, Taunton, at 11 a. m., Thursday, April 17. Annual business. Paper on "Infant Feeding," by Dr. Richard M. Smith, of Boston. Discussion. Luncheon.

CENSORS' MEETING.

For the examination of candidates—2 p. m., Thursday, May 8, at the office of the Secretary. Medical school diploma must be shown or the candidate cannot be examined.

ARTHUR R. CRANDALL,
WILLIAM O. HEWITT,
ELLIOTT WASHBURN,
Committee.
Secretary.

AMERICAN UROLOGICAL ASSOCIATION.—The annual meeting will be held in Boston on April 15, 16 and 17. The headquarters of the Association will be the Copley Plaza Hotel, where the afternoon sessions will begin at 2 p. m., and daily bulletins of the morning clinics will be posted. The members of the profession who are interested are invited to attend.

APPOINTMENT.

DR. ERNEST L. BOOTH, of East Boston, has been appointed a school physician by the Boston Board of Health.

BOOKS AND PAMPHLETS RECEIVED.

Nervous and Mental Disease Monographs Series, No. 15. Dreams and Myths, by Karl Abraham, Berlin. New York. 1913.

RECENT DEATHS.

DR. J. A. LAPOINTE, who died recently at Biddeford, Me., was born in Canada in 1843. He settled at Biddeford in 1877, and had been actively engaged there in the practise of his profession ever since.

DR. SYLVESTER E. STRONG, of Saratoga Springs, founder of a well-known sanatorium in that place, died on March 17, at the age of 75 years. He was graduated from the medical department of New York University in 1863, and afterwards served as surgeon in the U. S. Army.

DR. HUGH ANGUS STEWART, who died of septic tonsillitis recently in New York City, was born in Scotland, in 1882. He graduated from the University of Edinburgh, in 1904. In 1907 he migrated to the United States, and became assistant resident physician at the Johns Hopkins Hospital, Baltimore. In 1909 he was appointed assistant professor of pathology in the New York College of Physicians and Surgeons.

DR. FRANK WARREN CHAMBERLIN, who died recently in Harlem, N. Y., was born at Worcester, Mass, in 1860. He graduated from Worcester Academy in 1881, and from Williams College in 1885; and received his medical degree from the New York College of Physicians and Surgeons. He served on the house staffs of the New York and Sloane Maternity Hospitals, and was always active in the practise of his profession in New York City. He was a member of the Washington Heights and other medical societies. He is survived by his widow.

DR. JAMES TUCKER CUTLER, who died of pneumonia recently in Boston, received the degree of A.B. from Williams College in 1890, and that of M.D. in 1894 from the Harvard Medical School and from Boston University. He was visiting physician to the Cullis Consumptives' Home and the Homeopathic Dispensary, and a member of the Massachusetts Homeopathic Medical Society and of the Massachusetts Surgical and Gynecological Society. He was a resident and practitioner in Roxbury. He is survived by his widow and by one son.

DR. GRANT STANLEY, of Sea Cliff, Nassau County, N. Y., died on March 23, at the age of 38 years. He was born at Meriden, Conn., and was graduated from Cornell University Medical College in 1904; after which he served as interne at the Seney Hospital, Brooklyn. Dr. Stanley was associate physician to the Nassau Hospital, Mineola, and attending physician to the Country Home for Convalescent Babies at Sea Cliff.

DR. IRA VAN GIESON, of New York, died March 24, at the age of 47 years. An obituary notice will be published later.

DR. JOSEPH C. YOUNG, of Newark, N. J., died on March 25, at the age of 63 years. He was graduated from the College of Physicians and Surgeons, New York, in 1873, and for many years was chief medical examiner of the Mutual Benefit Life Insurance Company of Newark. At the time of his death he was consulting surgeon to St. Michael's Hospital.

DR. RICHARD PEARCE FRANCIS, who died on March 29 at Montclair, N. J., was born in 1860. He received the degree of A.B. from Harvard in 1883, and that of M.D. in 1888. He had practised his profession for many years in Montclair. He was president of the Montclair Medical Association, and a member of the local board of health. He is survived by his widow and by two children.

Original Articles.

HAND LESIONS FOLLOWING INJURIES OF THE UPPER EXTREMITIES.*

BY C. HERMANN BUCHOLZ, M.D., BOSTON.

(From the Medico-Mechanical Department of the Massachusetts General Hospital.)

THE development of man is in a large respect founded on the development of the hand, that most wonderful instrument which nature has created. Modern theories of the evolution of mankind point out that, aside from the brain, it is mainly the greater development of the hand which in ancient periods has marked the difference between men and the other primates. Most animals are far ahead of us either in locomotion or in strength, or in the sharpness of their senses, but all are inferior as to the development of the brain and of the hand. It was the hand of the savage which lighted the first fire; with his hands he made his weapon, and his hand threw the spear and shot the arrow to kill the bear and the deer for his defence and for his food.

The history of civilisation and culture shows on every page what man owes to his hand. From the crudest beginning up to the most complicated technique all art is work of the hand. The skilful hand of the surgeon saves his patient's life and health. The hand is, with the face, the most important organ of expression, and the hand-writing expresses our character so well, that a real science, the graphology, has been based on the magic connection between the brain and the hand.

What the hand means for the whole body in general, it means for the upper extremity in a special way. The arm without the hand or with a useless hand is not good for anything, while, even with a badly crippled or paralysed arm, a good hand is, though of a limited, but of a still considerable use.

With all that in mind it is no wonder that injuries or diseases which interfere with the correct function of the hand should have an especially great importance for the general welfare and the occupation of the patient, as well as for the skill and thoughtfulness of the physician. But it seems to me, at least from my experience, that the results in many cases in regard to the restoration of the function of the hand are not entirely what we wish and, I venture to say, what we should expect now. It is a large field covered by the present subject. For this paper I have just selected certain typical lesions of the hand frequently following injuries of the upper extremity. I shall exclude all injuries of the hand itself below the wrist, because of the special condition of such injuries, and shall mainly refer to the typical fractures of the upper end and the shaft of the humerus, the dislocation of the humerus, the fracture of one or both bones of the forearm, and the so-called Colles' fracture.

I freely admit, that my personal impression in this line of work may not be quite objective, as I usually see and care for the worst cases, while a great many others do not need any particular after-treatment. But even so, the percentage of cases suffering from more or less serious lesions of the hand following such typical injuries is great enough to justify any attempt to improve our results.

PATHOLOGY AND SYMPTOMS.

My studies as to the pathological changes are wholly based upon clinical and x-ray observations. I have never been able to obtain any specimens for pathological examination, and a few experiments which I have made on dogs have failed to give results which may be of any value. Even with prolonged fixation the lesion healed perfectly. Moreover the difference between the paw of the dog and the human hand is perhaps too great to expect a similarity in the pathological changes.

Since most cases of secondary post-traumatic lesions of the hand are seen following Colles' fracture, this type shall be chiefly considered in this chapter. In the average the patients are treated for four weeks at the surgical department and after that, if it is necessary, they are sent to the medico-mechanical department for functional treatment. Several patients came to us at the end of three weeks and very few at an earlier date. The splints had usually been omitted on the day they were seen first.

The clinical picture in such cases is rather typical: The forearm is somewhat flattened from the pressure of the splints. On the side of the forearm there is noticed more or less edema and often a distinct discoloration from unabsorbed hematoma. The back of the hand and especially the fingers show, as the rule, a considerable swelling. The circulation of the hand is poor. By palpating one notices the infiltration about the tendons, especially on the palmar side of the wrist and forearm and on the back of the hand and fingers. There is often noticeable an infiltration about the interphalangeal joints. In all cases the hand and fingers are very weak, and in the vast majority considerable limitation of the motion of the fingers will be noticed.

A typical example is the following case:

CASE 1. Woman of 55 years, in good general health, came to the accident room on Aug. 8, 1912, with a Colles' fracture, which was reduced under gas. Typical antero-posterior splints were applied and removed the next day for control. The bones were found to be in a very good position, the x-ray picture showing only a very slight backward bending.

On Aug. 21 the splints were reapplied.

On Aug. 28 the posterior splint was omitted.

* Read at the Boston Orthopedic Club, February 10, 1913.

On Sept. 5 the patient was sent to the medico-mechanical department. The fingers were then found to be very stiff and swollen.

Within three months twenty-nine treatments were given with but a moderate result. When seen last the patient was not able to bend her fingers sufficiently to touch the palm. The x-ray picture shows a marked atrophy of all bones of the hand and a distinct thickening of the fingers, especially about the interphalangeal joints.

Under appropriate treatment those symptoms clear up more or less gradually, but in many cases the improvement is extremely slow, and then with a decrease of the edema and infiltration the signs of atrophy become more prominent.

The skin loses its normal color and turgor; it is not so movable under the palpating finger as on the normal hand. In cases of long duration the circumference of the fingers may be considerably smaller while in the earlier stages the swelling due to the poor circulation will prevent this atrophy from becoming so noticeable. Most marked is the atrophy of the bones, as seen in the x-ray plate, to which Sudeck has first called attention. The x-ray picture shows a more or less marked loss of lime salts. The trabeculae become less clear and distinct or even may disappear on some places. The degree of bone atrophy is usually greater in relation to the severity of the clinical symptoms.

With an increase in the clinical symptoms we notice the retraction and tightening of the fascia and tendons of the fingers, in bad cases, of the whole hand. The most severe change is usually seen over the end joints and over the proximal joints of the fingers, but in the severe type the distribution may be equally extensive. The skin is then drawn tightly around the fingers, especially on the back side; the extensor tendons on the back of the hand are firm and do not glide under the palpating finger. The flexor tendons seem to be much better protected by their tendon sheaths.

Frequently changes of the joints are noticed. In the milder cases we have only a thickening of the capsule which gradually becomes retracted and forms a firm and tough ring around the joint. In the more severe type the cartilage becomes involved too. Such joints are oftentimes very much thickened, which change becomes the more apparent, as frequently the phalangeal parts of the fingers are thin and atrophic. In many cases where the palpation seemed to suggest a distinct thickening of the phalangeal ends the x-ray plate indicated a normal or nearly normal size of the bones themselves, but showed a faint shadow indicating the indurated capsule. The following case represents a good example of this type:

CASE 2. Woman of 54 years, in fairly good general health. The patient has broken her left wrist five months previously and has worn antero-posterior splints during six weeks and an anterior splint for ten days more. At the admission the following note was made: Fair position of the bones, but with the usual backward tilt of the articular surface of the radius. Slight outward displacement of the hand. Considerable thickening of the carpus, pronation free, supination limited, marked limitation of all motions of wrist and fingers. The fingers are held in moderate contracture and cannot be flexed more than two and one-half to three inches from the palm. Also the extension of the fingers is limited. The interphalangeal joints are markedly thickened, while the tissues between the joints show a great deal of atrophy, making the thickening of the joints still more conspicuous.

The x-ray picture shows a marked atrophy of all bones and suggests a narrowing of the interarticular space of several interphalangeal joints. The thickening of the soft tissues around the joints is distinctly seen on the negative.

Fifty-one treatments within three and one-half months did not give a very satisfactory result. When seen last the hand was still markedly crippled and stiff.

In the most severe type we find a distinct reduction of the size of the articular space, due to the atrophy of the cartilage. In cases showing actual hypertrophic spicules a certain amount of such spicules will also be noted on the other hand. Clinically those cases showed the well known picture of hypertrophic arthritis with Heberden's nodes. The following is a typical example:

CASE 3. Man of 67 years, in good general health, broke his right wrist on Sept. 16, 1912. The fragments were set at the accident room on the same day under an anesthetic, and antero-posterior splints were applied. The splints were repadded and rebandaged on Sept. 24 and Oct. 1. On Oct. 8 the patient was sent to the medico-mechanical department, where the following notes were made: Motions of wrist almost entirely limited, fingers very stiff, distance of fingers to palm in full flexion about two and one-half inches.

Now, after sixty-five treatments during four months, a functional improvement is obtained so far that the second and third fingers can touch the palm, while the distance of the fourth and fifth fingers in full flexion is still about one-half inch. But on account of the marked limitation of the end joints the fingers touch the palm, respectively come near to it, more proximalward than normally. The wrist shows about forty degrees of palmar and dorsal flexion, the rotation is fairly good. All fingers are much thickened, especially about the interphalangeal joints.

The x-ray plate showed a moderate atrophy of the phalanges of the right hand and a distinct hypertrophic arthritis of most interphalangeal joints of both hands.

The left hand shows a moderate amount of Heberden's nodes over the end joints, but a perfect function and absence of any other clinical symptoms.

I have not been able to find any selective distribution of the arthritis in the various fingers and the various joints of each individual finger; with the exception of the thumb, which is strikingly often less seriously affected than the other fingers.

Immediately after the removal of the splints a considerable limitation of motion is noticed, as has been mentioned above, in most cases. With the diminution of the swelling and the other acute symptoms the mobility usually shows an improvement which, however, is often very slow. In all cases where the atrophic condition becomes prominent and particularly in those showing a marked involvement of the joints, the mobility may be restricted for many months and we have seen a considerable number which did not show a satisfactory function within even years of observation and probably may always have a crippled hand.

In one of the worst cases (see Case 6) which came under observation four months after the injury the four fingers did not move more than about one inch forward and backward. That stiffness may be as bad as in the worst cases of infectious arthritis especially those of the gonorrhoeic type or in a septic hand. The resemblance of the traumatic hand to a hand affected by infectious arthritis is at times so great, that the differential diagnosis can become rather difficult without a knowledge of the history. But in these severe infectious arthritis cases we usually find a more extensive destruction of cartilage and bone with a tendency to the formation of bony ankylosis, which I have not seen in any of the traumatic hands.

The end joints of the fingers are most often limited in motion. Next to them come the metacarpo-phalangeal and last the middle joints, although there are exceptions where all interphalangeal joints are limited in motion, while the proximal joints are practically free. The flexion is more frequently limited than the extension; though a slight limitation of the extension is very frequent. A few cases have shown a marked contracture of the fingers which, however, is rarely as pronounced as in the septic hand. The hyperextension is almost always entirely limited.

As it is stated above, the thumb is usually not so much subjected to secondary traumatic lesions as the other fingers; therefore we find the limitation of motion usually not so pronounced as in the others. Nevertheless stiffness of the end-joint of the thumb is a rather common feature.

The seriousness of the subjective symptoms is about in accordance with the objective changes. In the severe cases the patients frequently complain of much pain and discomfort. They do not know how to hold their hand best. The hand feels cold and numb. Especially during cold weather the patients have great difficulty to keep their fingers warm and comfortable. It is interesting to notice, how much these patients become generally affected by the pain and the crippled condition of their hand; frequently such patients complain in a desperate manner about their constant physical and mental sufferings.

The frequency of the secondary traumatic hand varies considerably with the seat of the injury and with the age of the patient. It is obvious that the danger for the hand increases the nearer the seat of the lesion is toward the hand.

The following may give an idea as to the frequency in regard to the injuries of various parts of the arm. These data represent the first examination on the day when the patient was referred to the medico-mechanical department.

The number of Colles' fractures treated at the medico-mechanical department during a period of three years was 101, the total number treated at the out-patient department during the same period being 217. In 22 cases no notes were made as to the affection of the hand, though we remember several of these cases showing a marked restriction of motion. Of the remaining 79 only (a) 16 patients were able to touch the palm with the fingers, when seen first, and only in 5 cases of those the hand was recorded as normal. (b) 16 cases showed a slight limitation of motion, the distance of the points of the fingers to the palm in full flexion being less than one-half inch. (c) In 35 cases this distance was one-half to three inches and (d) in 12 patients even more than that, up to a nearly complete stiffness of the fingers.

	Fingers show free or nearly free motion.	Distance of points of fingers from palm in full flexion.		
		½ inch less	½ to 3 inches	more than 3 inches
	Class a	Class b	Class c	Class d
Number of cases	16	16	35	12
Average age	39	44	50	54
Number of cases treated at the hospital from beginning	9	8	16	4
Days of treatment previous to first examination at the medico-mechanical department	28	26	31	26

The table shows the figures in regard to the average age, the number of cases treated at the hospital from the beginning and the average time of treatment previous to the first examination at the medico-mechanical department. Among the 35 cases of class c the record gives the note: "position good, resp. excellent" in 12 cases. In class d the same note was found in three cases.

In the fractures above the lower end of the radius and ulna the cases are recorded for one year only. Of 20 fractures of the shaft of one or both bones of the forearm no note as to the involvement of the hand has been made in 12 cases. Of the remaining 8 cases 5 showed a more or less marked lesion of the hand, while in 3 cases the hand was normal.

In comparison with fractures of the wrist and forearm injuries of the elbow show a much smaller percentage of secondary affection of the hand. An exception to this occurs in fractures

of the olecranon, where there seems to be a greater tendency towards such affections. This may be due to the fact that with the ordinary treatment the arm is fixed for a relatively long time in an extended position, in that way preventing the fingers from early function. Of 19 fractures of the elbow, in patients older than 16 years, 5 presented an affected hand; 3 of these cases were fractures of the olecranon. A typical case was the following:

CASE 4. Man of 70 years, who was seen two months after sustaining a fracture of his olecranon. The elbow showed motion from 170 to about 140 degrees. The fingers of both hands showed a marked hypertrophic involvement, with typical Heberden's nodes; but while the function of the left hand was perfectly normal, the fingers of the right hand were considerably limited in motion, the distance of the points of the fingers from the palm being about three inches in full flexion. The gain in motion of the elbow and fingers under a two months' treatment was but very slight.

Injuries of the shoulder again show a somewhat higher percentage in regard to affections of the hand, than those of the elbow. There seems to be a definite connection between the shoulder and the hand. Not only that many cases of injuries or infectious processes of the shoulder lead to a secondary affection of the hand, but also many patients with hands seriously affected from an injury or a local infectious process complain of pain in the shoulder joint or even present more or less restriction of motion in that joint. Of 35 cases of fractures of the upper end of the humerus 12 showed an involvement of the hand. Two of those cannot be counted in this connection because of a simultaneous fracture of the wrist.

As to the age of the patient there can be no doubt that with the advanced age the disposition to primary and secondary affections of joints, and of the hand in particular, is increased. All text-books on fractures and dislocations agree in this respect. However, the number of relatively young patients, with perfectly normal joints, aside from the injured extremity, who came under our observation suffering from most serious affections of the hand, is not small. I would furthermore say that in some of them the primary treatment was applied by the best surgeons; some of those cases were treated from the first day at our hospital.

As we have mentioned before, it is a fact, that patients with the typical Heberden's nodes are especially vulnerable. In many of such cases the hand of the injured side will show the thickened joints similar to, or more frequently somewhat worse than on the other hand. But almost always we will notice, that the limitation of the function is much greater than on the other side. This, I believe, cannot be explained by an aggravation of the joint symptoms alone, but, as I have said, by the greater vulnerability of all tissues.

Whether there is actually an individual and a racial disposition to such affections I do not dare to state objectively, but it has frequently been my impression.

CAUSES.

For the description of the etiological factors the Colles' fracture has again been chosen as the most typical and most frequent example.

The following may be considered as causes of the secondary traumatic hand:

1. The primary injury.
2. The hemorrhage.
3. The forcible reduction of the fragments.
4. The faulty application of splints and dressings.
5. Too long duration of fixation, and
6. An ill-judged after-treatment.

1. As to the primary injury very little need be said. In the first place it ought to be expected that the danger of a secondary affection of the hand in Colles' fractures or similar injuries is increased with the seriousness of the trauma. But it does not always seem to be that way. There are a number of cases where the affection of the hand was but slight, while the clinical picture and the x-ray plate indicated a severe damage to the bones and vice versa.

2. Next to be considered and, in the writer's opinion, of great importance, is the hemorrhage. The absorption of the blood with which most tissues are soaked, not rarely to a considerable distance from the point of the fracture, is at times very slow, especially when the natural resources of absorption are to a certain extent inhibited by preventing the muscular action. An irritation and often a marked inflammation of the soft tissues may follow which often leads to a formation of fibrous tissue with secondary retraction and atrophy of the muscles, tendon sheaths, ligaments and capsules.

3. The reduction of the displaced fragments under an anesthetic represents another injury which, however, may be but slight, if it is done with sufficient skill and care. While it must be the effort of the surgeon to obtain as good an anatomical adaptation of the bones as possible, it should be kept in mind, that the functional cure does not depend upon the exact reduction alone. In many of the most seriously crippled hands due to a Colles' fracture, the bones were found to be in a most excellent position. Occasionally I have found a note on the record as following: "Position excellent, hand useless."

The danger of a new injury is increased if the forcible reduction is made several days or even weeks after the accident. The advantage of a late reduction in a Colles' fracture is any way doubtful. Stimson says: "A few cases have been treated by refracture or by incision and osteotomy. I doubt if anything more than an improvement in appearance can be gained thereby; the causes of loss of function cannot be thus removed." Scudder is in favor of an open re-

duction in badly set Colles' fractures. I remember several cases where the effect of the late reduction on the position of the fragments was slight or nil, but where the secondary inflammatory effect on the hand was dreadful, certainly delaying the patient for months in his recovery.

4. Nearly all our patients with Colles' fracture have been treated with the double anteroposterior splints, perhaps the most simple way of splinting. I think Cotton is right in saying, that the result does not depend so much on the kind of splints, as on the manner in which the splints are applied. But with all that we must not forget that *all* splinting does some harm, and it should constantly be kept in mind to lessen this harm as much as possible. Experiments of Reyher have shown that long splinting of normal extremities exerts a certain deleterious influence upon all tissues, most notably the muscles, joints and bones. As to the bad influence of splinting, especially long continued splinting, in injured extremities we do not need any experiments. We see such cases daily in our clinics. The bad influence of fixation in a fractured limb is that the speed of the absorption of the hemorrhage is diminished, the circulation is decreased, the nutrition of all parts interfered with to some extent, and the muscles and joints are deprived of the beneficial effect of the functional stimulation.

The tight bandaging apparently presses away a part of the hematoma, but it acts chiefly on the surface. As it was stated above, one can frequently notice, that after the removal of the splints the arm does not show much swelling, but palpation of the tendons will show the distinct infiltration of the deeper parts.

5. The time of fixation plays a distinct rôle in causing and maintaining post-traumatic lesions of the hand. There is no full agreement among the authors as to a reasonable time of fixation in cases of Colles' fracture. Eisendrath recommends four weeks and this has been the average time of fixation used in our clinic, although after the third week one of the splints has usually been omitted.

Cotton says: "Only in rare cases of delay in union, in cases with very great damage to bone and soft parts, can there ever be need of anything more than a protective splint after two weeks."

With the French method of Lucas Championnière no splint is used at all, the patient's hand being put in a sling only, a method which has not come in favor in this country.

In many cases treated outside of the hospital and sent for an after-treatment to the medico-mechanical department splints had been worn for six to eight weeks and even longer. Some of these cases showed a very severe affection of the hand and did not give a satisfactory result. However, it must be admitted that there are seen cases with very slight affections of the hand and slight or no limitation of the motion of the fingers in spite of a prolonged use of splints, while, on the other hand, in several of our worst cases the time of splinting had been three weeks only or even less.

But in general it seems, that unnecessary long use of splints is apt to increase the stiffness of the joints and the retraction of the muscles and to make the time of after-treatment longer and the final result poorer. But, to be sure, the main question is not, how long the broken limb has been fixed in splints, but how the splints have been applied, and in what way care has been taken for the injured soft tissues.

6. How much ill-judged after-treatment may favor the development of the traumatic hand will be considered in the last chapter.

The foregoing classification of etiological factors is made in regard to the Colles' fracture as a typical example. Conditions are similar in fractures of the shaft and even of the upper end of one or both bones of the forearms. In fractures of the humerus, especially those of its upper end the too long and too tight fixation seems to be the main cause of a secondary affection of the hand, though the influence of the primary injury and of the hematoma may also come in consideration. A number of our cases belong to that type of patient who is in fear of any motion and holds the fingers constantly stiff.

PROGNOSIS.

The prognosis of the secondary traumatic hand is in the majority of cases favorable. It is difficult to obtain exact statistics as to how long it will take for a stiff hand to regain full motion and strength, since many out-patients do not notify us, when they want to discontinue the treatment. But it is still a rather large number of patients who get out with a more or less crippled hand. Certain cases which I have had a chance to follow for many months and even for years did not show a satisfactory result. The end result is usually poor in those cases where Heberden's nodes have been present before the accident, but also a number of such cases, where the stiffness was largely due to retraction of the soft tissues and not so much due to actual changes in the cartilage and bones, have shown a progress so slow, that I felt sure, they never would get anything like a good functional result.

TREATMENT.

In considering the treatment we are confronting two questions, the first, how to prevent, and the second, how to cure the secondary traumatic hand. From all that is said above, it is obvious, that the first question is the most important one. Preventive measures have to be begun as soon as the patient is seen. It is not the idea of this paper to criticize in general the treatment of fractures of the upper extremities, but the present subject brings up necessarily a certain criticism of that treatment in

regard to the lack of individualization which, I believe, is prevalent in this kind of surgical work. Certain conditions which may be simple and easy to cure in youth may present a difficult problem in older people, therefore, in older patients and in such showing otherwise a tendency to arthritic conditions, careful precautions should be taken. First of all, the reduction should be attempted with the greatest skill. It should not be the aim to obtain an excellent position of the fragments *under all conditions*, but the functional problem should guide the therapeutic measures. These principles are also of importance in regard to the dressing. Whatever material and method is chosen, the pressure by the splints should never be too great. It is better to have the bones even slightly displaced than to do damage to the soft tissues which may be irreparable.

Of the greatest value in such cases is the early treatment with massage and exercises. In a number of cases where I have carried out this form of treatment I have been always very much impressed by the speed of the absorption of the hematoma and by the ease with which movements can be made even at an early date. My technic has been as follows: After the reduction of the fragments the arm and hand are put on a Schede's splint in palmar and ulnar flexation. On the following day the dressing is removed, but the hand is not lifted from the splint which is put, with the hand on it, on a table or on the operator's knee. While the one hand of the operator holds the patient's wrist tightly, but without hurting it, the other hand gives a number of soft stroking manipulations over the muscles of the forearm, as far as can be reached, and over the back of the hand. After that the dressing is reapplied. On the next day the same treatment is given, adding a few passive movements of the fingers. The hand need not be removed from the splint, when the latter is correctly applied, allowing the fingers a free play. (This point is, in my opinion, of great importance. It is absolutely unnecessary and is decidedly dangerous for the function of the handy to apply the splints in a Colles' fracture or similar lesions beyond the middle line of the palm.) The stroking is given somewhat more vigorously and kneading manipulations are added. I also do a few movements of the wrist, as early as on the fourth day. If that is done with sufficient care it does not cause any pain; loosening of the fragments is hardly possible, when the wrist is firmly held upon the splint. Such treatment which in the first days does not require more than a few minutes ought to be given every day or at least every second day, increasing each time the amount and number of motions.

The treatment of the fracture of both bones of the forearm is always a difficult problem, and I have no personal experience as to the early use of massage and exercise in such cases. Deutschlaender, one of the strongest advocates of that treatment, reports cases with a most splendid result obtained in a time, much shorter than by the usual methods.

I have lately treated one case of a fracture of the shaft of the radius, beginning massage of the forearm and hand and exercises of the fingers on the seventh day. The patient made a perfect functional recovery within five weeks from the accident.

In cases with delayed union in Colles' fractures as well as in fractures of the shaft of one or both bones of the forearm fixation is necessary until firm union is obtained. But as I have emphasized,* it is wiser to begin massage and functional treatment, especially of the fingers before union takes place, because not only the union may be hastened by such treatment, if it is done with the correct technic, but also the function can be and ought to be restored while waiting for the union of the fragments. A typical case was the following:

CASE 5. Young, healthy man of 30 years with a fracture of the radius about three inches above the lower end. The patient was treated in the routine way with antero-posterior splints after reduction of the fragments. Since the union took place rather slowly the forearm and hand were kept in splints for over five weeks. Then the patient was sent to the medico-mechanical department for after-treatment. The forearm showed about fifty degrees rotation, the wrist was nearly stiff and so were the fingers. The x-ray picture taken eight weeks after the injury shows a marked atrophy. Since it is a young and healthy patient, the outcome will probably be favorable, though a long continued treatment may be needed. The better way in such a case would have been to start massage and careful functional treatment at the end of the second week or earlier. The time of the after-treatment probably would have been cut shorter by that way.

Nothing need be said about the fractures of the lower end and shaft of the humerus, because of the relatively rare occurrence of secondary involvement of the hand according to our statistics. In fractures of the upper end of the humerus the routine treatment after reduction of the fragments has been fixation of the arm for about four weeks. If it is not possible in such cases to use the traction method which, according to Bardenheuer, Peckham, and others, gives better results in a much shorter time the treatment should at least be made more active.

The following method has been found to be of value in such cases: On the third or fourth day the dressing is removed while the patient is sitting on a chair. The operator puts his hands from both sides on the shoulder, thus controlling the fragments and at the same time exerting a certain pressure over the swollen region. Now the hands perform slight rotary movements, very gently, but with sufficient pressure. Then with the hands still in the same position a kneading of the deltoid muscle is done with the thumbs which grasp one part after the

* C. H. Buchols: Treatment of Fractures with Delayed Union. BOSTON MEDICAL AND SURGICAL JOURNAL, July 22, 1909.

other and press it gently with rotary movements. After that a thorough kneading of the trapezius and of the muscles of the upper arm is done with one hand, while the other hand controls the fragments. After reapplying the dressing on the shoulder massage of the forearm and hand should follow, if needed. This treatment is given every second day or oftener and exercises are started, as soon as a partial union is noticed, which is, as the rule, after two weeks.

A few words may be added on the early use of massage and functional treatment in fractures and dislocations. Most of the competent authors feel there is something good in it, but they are not yet ready to recommend its general use. Cotton expresses his standpoint in saying: "We are hardly educated to this yet, and, if we were, most of us have no masseur, to whom we are ready to intrust cases at this period." He enumerates the following dangers: "Imperilling of the reposition, delay of union and irritation to joints." There can be no doubt that all three dangers are present, but in the hands of a skillful surgeon, and only the surgeon himself should do this work, they are very slight. As to the slipping of the fragments I have never seen a case myself. As to the delay of union my experiences have shown just the opposite result in hastening the cure in fractures with delayed union by massage and functional treatment. The danger of irritation of joints is in my own experience the greatest of the three dangers enumerated by Cotton, but, I do not think, it is greater, if the exercises are done one week, than if they are done four weeks after the injury. In fact, it seems to me that we can do exercises of joints, remote to the point of the fracture, more easily and with less risk of irritation on the fourth or fifth day than after the fourth or fifth week when, as a rule, functional treatment is started.

The second question is: What can be done with the secondary traumatic hand? The answer is very simple: In the milder cases a good functional result can be obtained by a persistent use of baking, massage, active and passive exercises, etc.; in the severe cases the hand will remain more or less crippled.

It is certain that many of such hands will come out all right without any after-treatment, and in general it seems better to leave them alone, than to send them to a masseur, who is not perfectly familiar with the subject. From my experience I have gained the impression, that such hands are very susceptible to an inflammatory reaction, when they are handled without proper care. To frequent forcible manipulations the tissues of such hands respond with swelling and pain which at times may be very persistent. I remember cases where the pain, caused by too rough handling, prevented the patients from sleep and brought them to a terrible stage of nervousness and exhaustion. Under a careful combination of light fixation, baking, and massage, the acute symptoms will subside within a week or two and after that exercises may be started again.

One case of this type was especially instructive to me.

Case 6. Woman of 52 years, who sustained a Colles' fracture four months previously. The fragments were reduced to a good position and the arm and hand splinted in the typical manner for nearly seven weeks. After removal of the splints the hand and, more or less, the whole arm were much limited in motion, and a masseuse was ordered to give massage and exercise treatment. As the patient told me, these exercises have been given so forcibly that her cries from the intense pain alarmed her neighbors. I saw the patient, after this form of treatment had been given for two months every day. The patient was very much exhausted and nervous. She did not sleep very well on account of pain; she had no appetite, and had lost in weight.

When seen first the whole left arm was held entirely stiff. The shoulder was limited in motion about two-thirds; the elbow one-half, and the wrist almost entirely. The fingers were so stiff that the points moved passive only about one inch forward and backward, active even less than that. It seemed hardly possible that the masseuse had been able to bend the fingers down to touch the palm only a few days previously. By a careful treatment with baking, massage and gentle exercises the motion in the shoulder and elbow were nearly entirely restored, while the forearm and hand showed a marked limitation of the motion even after five months of treatment.

The technic of massage in these cases is not difficult, but it cannot be learned from books. The best and most valuable thing in massage, the fine touch and the knowledge how much force and pressure is used in the individual case and on the different parts can be learned by practising only.

Exercises are best given in the form of resistive movements which at times may be supplemented by gentle passive manipulations. In cases with marked inflammation of the joints and ligaments, it is not advisable to give the exercises with the idea of a visible gain in motion under every day's treatment, but it is better simply to move the joints with a certain resistance as much as the movements can be done without pain. At least the pain should not persist for more than a few hours. If in spite of all care the symptoms of inflammation become increased, it is better to stop the exercises for a while. Under application of hot air, local warm baths and massage the acute symptoms usually subside within a week.

The forcible manipulation under an anesthetic has, in my experience, been found to bring up a decided danger. It is liable to produce a severe inflammatory reaction and may delay the recovery for weeks, if not at all reducing the outlook for a good result. In former years I have tried forcible manipulations under gas in several stiff hands, but have now entirely abandoned this method.

What finally becomes of such bad hands I am unable to say. One patient who came under our care nearly three years ago with a hand perfectly stiff in full supination, due to a poorly treated Colles' fracture two years previously, has gained so much by a fairly regular treatment, that she is now able to use her hand for most necessary occupations in daily life, though she cannot bring her fingers nearer than two inches from the palm. Many cases will probably improve in the long run, but even if the full function is finally restored, the sacrifice has often been greater than might have been necessary.

The idea of this paper has been to draw attention to the secondary traumatic affections of the hand and to make suggestions how to reduce the number of such cases. We shall do so, when we direct the treatment towards the functional cure from the very beginning, when we learn to individualize, and when we never forget, that we have to deal with living tissues which will react upon traumatic influences with inflammatory processes. To avoid the inflammation and, if it is not possible, to check its disastrous consequences in time, will give better results at the end.

HEAD INJURIES OF THE NEW-BORN.

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THE recent post-mortem findings of so many cases of meningeal lacerations of the new-born opens up a new and wide field for thought and investigation. It is not for a moment to be assumed that the obstetrician of today is less skillful or more careless than his predecessors in the use of the forceps, but rather that the subject is receiving very careful attention on the part of the pathologist and the brain surgeon.

It is conservatively estimated that in cases of forceps delivery, from 30 to 40% of the infants so delivered suffer more or less from intracranial hemorrhage. True, many of these cases fail to show any ultimate effects of such lesion, but a sufficiently large number either succumb quickly or show remote effects, to warrant the warning which is now being agitated.

The advent of the obstetric forceps created no small furor in medical circles; they were variously condemned, lauded, damned and defended, only to take their place finally as an indispensable requisite to obstetric practice.

But after all these years of popular favor, we are now obliged to bring against them an indictment, based upon new-found evidence. While this evidence does not condemn the forceps in toto, yet it seeks to place restrictive measures upon their too general or indiscriminate use.

It is now generally conceded that where the dilemma arises of choosing between a protracted, difficult forceps delivery, especially those requiring great traction, or a Cesarean section, the safety to both mother and child is materially enhanced by resort to the latter.

Just a word as to the manner in which these hemorrhages take place. First, it is to be noted that in the autopsies mentioned, the majority of cases showed the hemorrhagic centres to be in the parietal or frontal regions, close to the longitudinal sinus. The second most frequent centre was just above or below the tentorium, or in the tentorium itself. When the parietal bones are made to overlap in an exaggerated manner, as they must do in a difficult forceps case, there is an extensive peeling off of the dura on one side, and of the periosteum on the other side. This allows a blood clot to form, which, if not extensive and conditions are favorable, will be absorbed without any ill effects; but if there be a continuation of the oozing, and the circulation be somewhat impeded, an intra-cranial local pressure will soon be exerted, which in time causes edema, with a resulting general pressure.

Again, if there be an undue overlapping of the occipital bones, one upon the other, or of occipital upon temporal or parietal, there is quite likely to be a laceration of the tentorium. Hemorrhages occurring in this region are more fatal than those occurring along the longitudinal sinus in the frontal region, from the fact that the medulla is here quickly affected, and asphyxiation results.

But while these tentorium lacerations are the most fatal, they are by no means the most unfortunate, for many of the frontal and parietal lacerations produce clots, which by their continued pressure, tend to destroy the cells of the cortex, producing a porencephalia with all its attending mental defects.

It must ever be borne in mind that the brain of the new-born child has less resisting power than almost any other tissue in the body; it is soft, is but poorly medullated, and will disintegrate quickly if there be any circulating disturbance.

Could we insert a window in the skull of the new-born, which had become the victim of a cerebral laceration, we would note changes something after this manner: If the bleeding were epidural, we would see a gradual ooze from the meninges, with coagulation and steadily increasing pressure. In the course of a few hours the ooze would cease, owing to the increasing pressure. After three or four days there would be a change in color of the clot from a deep red to a brownish red, and later to a light brown. Then the clot would begin to grow smaller as absorption took place, and change from a solid to a semi-solid body. Later it would appear to dissolve entirely, and a serum take its place.

If now we could continue our observation, we would notice nature's attempt at curing by throwing a wall around this serum and making

a cyst of it. This wall would be of a yellow color, quite a contrast to the cortex, and could be easily removed did we know its exact location. It is at this stage particularly wherein nature calls so loudly for help in removing the offending cyst. She is signalling to us by causing the patient to undergo epileptic seizures, exhibition of local paralyses, mental disturbances, or special sense perversion. Failing to attract our attention to the exact seat of the trouble, she surrenders to the inevitable, which is a destruction of the cortex due to the continued pressure and disturbed circulation.

If now we take a fresh look through the window, we will notice an interesting sight. The cortex appears as if it had changed to a substance not unlike bees-wax in its composition, having large pores filled with serum; the delicate pia mater is stretched over these little lakes or cells and the fluctuating fluid can be seen beneath the transparent membrane. It is in fact a degenerated porosity of the cortex, and is now beyond all hope of redemption; neither nature nor man can restore a porencephalic cortex, and the child is either a hopeless cripple, an imbecile, or both.

Let us now go back to the beginning of the trouble and see if we shall be able, by the manifestation of symptoms which the new-born child presents, to recognize the presence, the extent and the location of any cerebral hemorrhage which may have taken place. First, every obstetrician delivering a child under the conditions mentioned, should be prepared and acutely alert to recognize the first signs of cerebral hemorrhage. In the most severe cases the first evidence would be, an apparently dead child. The autopsies conducted by Bauereisen at the Kiel Maternity, Vienna, show quite conclusively that nearly all the still-births of that institution were such, not because of asphyxiation due to the protracted delivery, nor because of misplacement of the cord, or any of the other heretofore assigned causes, but solely because of intra-cranial hemorrhage, especially hemorrhage at or near the medulla; and he lays special stress upon the dangers, in the old practice, of swinging the child's head downward to resuscitate it, or of handling it in any manner so as to increase the intra-cranial hemorrhage, which is already going on. He reports the details of eleven cases of cerebral hemorrhages out of 47 autopsies on infants, all of the eleven cases having been instrumental deliveries.

If, therefore, the new-born child appears to be dead, and does not respond to the usual methods, such as clearing the respiratory passages, immersing in warm water, friction, etc., intra-cranial hemorrhage should be suspected, and the remedy applied as later suggested.

If, on the other hand, the child breathes but gives signs of low vitality, the following symptoms would be suggestive of cranial pressure: Undue protrusion of the fontanelles, pallor of the skin, deviation of the tongue, head drawn backward, convulsions, impeded respiration, such as Cheyne-Stokes, or respiratory irregularity in any form. If the child survives the first few weeks of life, and the clot continues to cause irritation, nature again runs up her distress signals in the form of a different set of symptoms. They are these: Difficulty or inability to swallow, inequality of the pupils, frequently recurring convulsions, spasmodic screams, continued restlessness or drowsiness amounting almost to coma, muscular insufficiency, especially an inability to support the head. Still later comes the evidences of paralysis if the clot be in or near the motor area. If the child continues to live, the real tragedy in that family has only just begun. Each succeeding act plunges all the characters into deeper gloom and despair, and usually the last scene is not the hoped-for death of the victim, but rather the premature death of the over-wrought and saddened mother, who has carried on her heart and hands the burden of an imbecile or crippled child.

The following picture will act as a composite for the majority of cases of porencephalia following an intra-cranial hemorrhage at birth:—

Case 1. It was a boy whom I had continuously under observation from his infancy to 18 years of age. The birth was a foot presentation, head delivered by forceps with difficulty, large, well developed child, but apparently dead; revived, breathed irregularly, was very weak, had to be fed with spoon, never nursed either at breast or bottle. Did not hold up his head until two years of age, showed signs of right hemiplegia when he tried to creep; began to have epileptic seizures at three years of age, which continued throughout life. Never talked, but made a guttural sound which was intended as an answer; understood what was said to him and would obey; had fairly good memory but otherwise an imbecile; had spastic paralysis of right arm and leg. The mother had never absented herself from this boy, day or night, for those 18 years. When 18 years of age the parents preferred the risks of an experimental operation rather than make no attempt at relief. A trephine opening over the left hemisphere in the motor area showed a condition of porencephalia involving all of the motor area and speech centre; numerous small cysts beneath the arachnoid; the cortex looked honeycombed and was of pale grayish color. This was a case which had passed through the various stages of intra-cranial hemorrhage at birth, clot formation, transformation of blood clot into serum, cystic formation and final destruction of the cortex under the area of pressure. The boy did not survive the operation, as a parasinoidal sinus ruptured causing a fatal hemorrhage.

We are all familiar with these poor unfortunates; they present much the same appearance, simply differing in minor details. The mentality is about nil, speech absent or but indifferently present, usually a spastic paralysis of one arm or leg, or both; epilepsy present as a rule.

When we realize the havoc wrought in a home by such a tragedy, we become deeply impressed

with the great responsibility resting upon the accoucheur, and the possibility of finding some remedial agent which shall spare a household this deep sorrow.

The first question to present itself is, how early must such a lesion be recognized in order that it may be cured by operative measures? Unfortunately, no hard and fast rule can be laid down, owing to the varying degrees of resistance in the brain of different individuals. A clot pressing upon the brain of one child might cause a porencephalia within two or three years, whereas in another, such a condition might not ensue for six years. But generally speaking, there is little hope of affecting much improvement by surgical measures after a period of six or eight years. Much the same rule applies here as in epilepsy. After the epileptic habit has become established for ten years or more, even though it be of a definite traumatic origin, it is rare that a cure is effected, notwithstanding that the cause of the seizures may be readily found and removed. If we cannot state how *late* an operation can be performed with hope of success, we can state how *early* it can and should be performed; it is entirely *safe* and reasonable to operate upon the new-born a few hours or days after birth, with very excellent chances of recovery

Allow me to cite an interesting case as an illustration of this kind of intra-cranial hemorrhage:——

CASE 2. This case came under the observation of a Boston surgeon some eighteen months ago. A child of four days old, instrumental delivery, no complications otherwise, a healthy boy of nine pounds. On the third day he became stupid and finally slept continuously. Twitchings appeared in the right hand and leg, also the left eye and left side of the face. The father of the child, being a physician, was easily induced to have a surgeon called. Fortunately the surgeon had been doing some brain surgery, and an exploratory trephine opening was made over the leg and arm centre on the left side of the head. A small sub-dural clot was found and removed, and the child made a good recovery, with the entire disappearance of all symptoms of compression. Eighteen months have elapsed and the evidences are that no further hemorrhage has occurred.

CASE 3. I have a record of two other cases very similar in their nature. The youngest child I have operated upon was 3½ years old, whose history was very much as the composite outlined. He had right hemiplegia and impairment of speech, but had developed quite well physically. His condition showed plainly what area was affected, by the paralysis of the right arm and leg, with the involvement of the speech centre. The exposure of his left motor area, through a good sized osteoplastic flap, showed the cystic stage of the hemorrhagic clot. There was some destruction of the cortex adjacent to the cyst, demonstrating the beginning of porencephalia. The cyst was evacuated, but the delicate and friable nature of the cortex would not permit of the removal of the cyst wall. There was, however, much improvement in the use of the arm and leg. The case is still under observation, and I feel quite sure that had this case been operated one year earlier, a complete cure might have been effected.

To show the extent to which an intra-cranial hemorrhage may extend without giving any external evidence on the skull of such hemorrhage, and also as an illustration of how easily overlooked are these cases of meningeal lacerations, I wish to cite another case:—

CASE 4. A young, healthy woman, at her first confinement, had a very difficult labor; the pelvis was of normal size, as the measurements showed, but the head was unusually large. The physician was a Boston man of large obstetric experience. He had applied the forceps and worked patiently and skilfully for several hours without effecting a delivery. She was then taken to the hospital and I was called in consultation. A Cesarean section was immediately decided upon, and in a short time I had delivered the child through an abdominal incision. The child responded but poorly, had great difficulty in breathing, was cyanosed and soon showed a marked Cheyene-Stokes breathing. At the end of four hours, the mother having rallied nicely, I decided to operate upon the child, but while we were making preparation for the same, the child ceased breathing, and could not be revived. I later made an autopsy, and found each hemisphere of the cerebrum normal, but in going below the tentorium, into the cerebellum, I found a large blood clot occupying most of the cerebellar fossae on each side. A close examination of the tentorium disclosed a rent of nearly two inches in the median line near the posterior fontanelle. This clot had so compressed the cerebellum, and that in turn had pressed upon the medulla sufficient to cause paralysis of the respiratory centre. It is scarcely possible that an operation in this case would have been successful. But here was a case where the forceps had so compressed the occipital and parietal bones as to lacerate the tentorium and cause an extensive hemorrhage; and yet not a sign of that hemorrhage was visible outwardly, save by an unusual tension of the fontanelles. The mother made an uneventful recovery.

It is in such cases that the death certificate usually reads "still-born" or "inanition," and there the research ends. It would shed a glorious halo of information upon these cases of so-called "still-births," if every one of them were subjected to a necropsy.

Details of Operation. In the most severe cases, the babe is usually comatose or but semi-conscious, hence an anesthetic is rarely necessary. If it is necessary, a few whifs of chloroform, administered by an expert, is sufficient. As ether increases cerebral blood pressure, and chloroform diminishes it, the latter for children and babes suffering from brain hemorrhage is safer. The trick of locating the bleeding point is the crux of the whole situation, and this can only be determined by a most careful study of the case by one well up in brain localization; for it must be remembered that the new-born child will show no evidence of local paralysis,

however great or wherever located the hemorrhage.

Procedure. Having selected the site for operation, the scalp flap is turned down and the bone exposed. Every drop of blood which it is possible to conserve should be saved, for it is drops, not ounces, which count with the new-born child. A trephine may be used or not, as seems necessary; if the opening is made near one of the sutures, it will not be required. A little careful use of the chisel or gouge without the hammer will usually affect a sufficient opening for the use of the DeVilbis forceps or heavy shears.

However, there is no objection to the use of the trephine, if it is used delicately. The Hudson drill is too powerful an instrument for use in the babe's skull. If the clot is epidural, it is reached immediately underneath the skull, and can be quickly removed. A little pressure with cotton will generally control any oozing. If the clot is sub-dural, it can usually be felt or seen beneath the dura, and that membrane is then opened and the clot withdrawn. It goes without saying that the hazard of the operation is materially increased if the dura is opened. It is a delicate procedure in the infant, and must be done skilfully. In the great majority of cases the clots are near the surface, and generally near the sutures, and more frequently epidural.

Rapidity, conservation of blood, and delicacy, are the essentials to success in these operations.

It is not, I am sure, exhibiting an optimism born of mere fancy, to express the belief that we shall some day be able to recognize and successfully treat so many of these cases of meningeal lacerations of the new-born, that the tragedy of having an imbecile child grow up in the family in consequence of such accidents, will be of the rarest occurrence.

SELF-MUTILATION BY THE INSANE.

BY J. M. KENISTON, M.D., MIDDLETOWN, CONN.

After consulting all available literature, I find very little said about the propensity of certain of our patients to mutilate themselves. A paragraph or perhaps a single sentence here and there, is apparently deemed adequate. Attempts at suicide and homicide, and various other morbid and maleficent tendencies are given ample consideration, and justly so.

When an insane person mutilates himself in any way he may not only cause a permanently injurious effect on himself, but he also may inflict great discredit on his medical attendant and the institution where he is treated. Relatives and friends will complain and often cause great trouble to those who have the charge of such cases. Sometimes instances of self-mutilation are exploited in the newspapers, only too often in a distorted or exaggerated manner.

The writer, therefore, feels that a brief résumé of cases of self-mutilation which have occurred either in his own service, or within his personal observation, will have a practical value. By no means do all these cases occur *in* the hospital. Very many happen before commitment.

It is convenient to classify somewhat arbitrarily these cases:—

A—Mutilation of head and neck.
B—Mutilation of body.
C—Mutilation of limbs.
D—Mutilation of sexual organs.
E—General mutilation.

Again, cases of self-mutilation may be divided into major and minor. Among the former we may mention amputation of fingers, hands and feet; emasculation; gouging out eyes; gashing or slicing the flesh; disembowelling; and thrusting one's self into fires. "Cleomenes, King of Sparta, struck with madness, demanded a sword. As soon as he received it he began to cut the flesh off his legs. He ascended to his thighs, from his thighs to his loins, till at length, making gashes in his belly, he died."*

Among the minor self-mutilations are, beating the head, or dashing it against the walls or furniture, causing ecchymoses and wounds; picking various parts of the person with finger-nails, needles, pins, bits of scrap iron, or glass; biting the nails to the quick; removing surgical dressings; self-flagellations; excessive constriction of various parts of the body.

A. MUTILATION OF HEAD AND NECK.

Case 1. R. F., male, colored. This man, who presents all the classical and typical symptoms of catatonia, gradually picked at his right nostril until he finally removed it entirely, leaving a large, cavernous and unsightly opening. Various means to restrain him and thwart his object were futile. If he wore mittens or camisole, he would rub his nose against the side of the bed or the wall. Employing special nurses to keep him constantly under observation did not succeed, as in some way or other he would elude their vigilance for a moment, and tear at his nose. Having finally accomplished his purpose, he seemed satisfied, and for years has contented himself with designing and applying the most absurd and fantastic substitutes for the nostril, such as scraps of rubber or other cloth, pieces of paper, ravellings, and so on. Sometimes he uncovers his nose, and exhibits it, with an air of pride, to his fellow patients and others. As he had numerous religious hallucinations in the early years of his psychosis, he probably mutilated himself in response to an order from some divine being. However, he has never given any explanation.

Case 2. J. S., male, epileptic. This man averaged four attacks of grand mal yearly, with occasional dreamy states (equivalents?). In one of these he cut his neck with a piece of scrap iron he removed from the bed spring. The wound was quite large, making a curved flap about four inches in width, just over the cricoid cartilage, which was not injured. On emerging from his dreamy state

* D. Hack Tuke: Dictionary of Psychological Medicine.

three hours later, he remembered nothing that had happened, and was amazed to find his neck bandaged.

CASE 3. F. M., male, epileptic. Has several attacks of furor yearly, during which he will thrust his fingers into his mouth and lacerate the mucous membrane, and will also tear his face with his nails.

CASE 4. M. W., female, paranoid condition. After sustaining a slight injury of left eye, gradually enucleated it, the complete extirpation requiring over four weeks.

CASE 5. J. R., male. With one movement enucleated an eye, and displayed it, in the palm of his right hand, to the visiting physician on his morning visit.

CASE 6. M. D., female, manic. Whenever excited tears her face and neck, and beats her head against the wall, sustaining severe injuries without any manifestation of pain. Often the attacks come on suddenly. Careful watching and special nursing have been quite successful in abating or mitigating these outbreaks.

Several other patients have injured themselves by inserting foreign bodies—as nails, buttons, bits of glass, splinters, rags, etc., in nose, ears, mouth, or even eyes. One woman for years used to stick deeply in scalp over frontoparietal region innumerable pins, needles, and even tacks. At times she applies soft soap as a depilatory. One of her fellow-patients called her a "walking pin cushion."

Milder forms of self-mutilation—rubbing or picking the skin in spots, causing unsightly sores—are comparatively frequent. One man rid himself of three wens by manipulating them with wire rings, pieces of crockery, and handles of discarded tooth brushes. At this writing three women in my service amuse themselves by pounding their faces, thus often causing "black eyes." Another woman for years pounded the top of her head with the seat of a common chair, and now has a marked depression of the skull. No cerebral lesions resulted. Two women cut off, or pulled out, their eyelashes.

B. MUTILATION OF BODY.

In my personal experience this has been very infrequent. One case was of great interest to me:—

CASE 1. J. L., male, dementia praecox, catatonic form. On December day he burned his left arm, either intentionally or accidentally, on a radiator. The tissues sloughed, exposing the muscles. It was found that not only was there absence of sensibility (pain) in and around the wound, but also over the entire surface of the body. Reflex action was markedly diminished. The wound healed rapidly, but the analgesia and anesthesia persisted, and soon a new feature appeared. Whenever he was in the hall he would try to get to the radiators, or the hot water pipes, or the gas jets, when lighted, and endeavor to burn himself. When he succeeded, which he occasionally did, he manifested no pain, but usually smiled. Failing to burn himself, he would scratch or tear his skin. He never attempted to injure himself in any other way, and his motive was evidently not suicidal. He was very sensitive to cold, and would cover himself with several blankets, although his room was heated. This propensity to burn continued until his death two years later.

CASE 2. C. R., male. On one occasion a large inguinal hernia became irreducible by taxis, posture, etc., even under complete anesthesia. While preparations were being made for an operation, patient reduced the hernia by rubbing it with his rings and other implements, which he had craftily secreted in his bedding. He said: "After using my tools three times, I hit my rupture with the back of my hair brush, and it went back with a big 'blob.' You doctors ain't going to cut me up." Strange as it may seem, no evil results followed this novel surgery, and the patient lived for several years without further trouble.

Several men, all paretics, have lacerated various parts of their bodies, each choosing, as a rule, some special locality, but generally without any serious results.

C. MUTILATION OF LIMBS.

CASE 1. J. P., male, epileptic, with aura proceeding from his feet "something like a wave." Whenever possible, he would remove his shoes and stockings. One summer evening, just as the writer entered the ward, he saw patient stoop suddenly, and tear out the nail on each big toe. This was done in an instant, before writer, who was close at hand, could intervene. The mutilation apparently caused no pain, and patient said, "Now, I hope I will have no more fits."

CASE 2. A. S., female. Some years ago sustained a Colles' fracture of right arm. She would not wear splints or any dressing, removing them as fast as they were applied. Being very excitable and irritable, she often vented her spleen by pounding the table, or chairs. In this way, she caused a wound over site of fracture. This wound eventually healed, the fracture finally united, and every motion of the wrist and arm was restored, although a moderate deformity persists.

CASE 3. H.B., male, a catatonic, who for three years has assumed a very constrained position with marked muscular tension, and who has not spoken more than adozen times during that period, a short time ago, suddenly bit off the distal half of the third phalanx of the left middle finger. The bone, which was cut by the teeth as cleanly as if done by a saw, protruded slightly. Patient would not allow any dressings to remain, but he eventually got a good stump.

CASE 4. G. G., male. Whenever possible, would turn on the hot water faucet and scald his hands. He did this on three occasions, notwithstanding the careful vigilance of his attendants. This act seemed to give him pleasure, and he tried in every way to prevent the blisters from healing.

Case 5. M. M., female, melancholia of involution. Without any warning, went to the barn, and with an axe nearly severed her right hand, cutting through all the flexor tendons. An operation, at the Hartford Hospital, by Dr. Philip Bunce, was a perfect success. Patient regained complete use of arm and hand, and only a faint scar is left. She was later committed as insane.

Several imbeciles, with irregular periods of sudden furor, have a habit of thrusting their hands through the windows, thus sustaining, in some cases, very severe cuts. In one case I succeeded in stopping this propensity, by keeping the cuts open for about two weeks, and not allowing them to heal. Several women have forced on their fingers rings much too small, causing extreme swellings, and even cutting through the flesh. Sometimes they have wound pieces of wire about a finger, producing a similar result.

Three men, with residuals of old varicose ulcers of the leg, have scratched and dug the scars until they succeeded in reproducing a very fair replica of the original ulcer.

Although not strictly germane, it may be added that many patients will remove surgical dressings again and again, thus causing self-injury, and increasing the tribulations of the physicians and nurses.

D. MUTILATION OF SEXUAL ORGANS.

Case 1. C. McC., male, delirium tremens. Was admitted to New Haven Hospital 16th, inst. (May, 1882), with delirium tremens, and a contused wound of glans penis, which he had inflicted under the delusion of thus expiating some imaginary sin. The local injury resulted in a slough, but under charcoal poultices a line of demarcation is now present. He also labored under a stricture which before dilatation rendered aspiration of bladder necessary; past two days has urinated naturally, but slowly and with effort. At times during the week he has been so violent that he has been confined in a straight-jacket.

May 26. Continues to urinate without aid. Talks rationally and cheerfully; is interested in the healing of the injured penis; tongue looks cleaner. Pulse improving under digitalis. This morning all symptoms encouraging. This afternoon, when all the others were out for exercise, placed what was left of his penis on the foot-board of his bedstead and hammered it with the heel of his slipper until a ragged stump about on inch long remained. Faint from hemorrhage and shock he was found abed almost pulseless.

May 28. Was restrained by muff during the night and given stimulants and milk freely, cold water dressing during the night; cataplasms today. Urinated twice this afternoon. Takes nourishment with relish. Pulse moderately full.

June 10. The mutilated portion of the penis has sloughed off, leaving a granulating surface; patient urinates without difficulty. During the past week has had a general eruption (red maculae in irregular patches) accompanied by some fever, referable appearing.

June 17. Rapidly recuperating. Is abstaining entirely from tobacco, which, as well as alcohol, he has formerly used excessively.

July 7. The wound on the penis has healed. During the past ten days has suffered from inflammation of conjunctiva and cornea, which under anti-syphilitic treatment, with instillations of atropia and zinc, has nearly subsided. Has grown quite fleshy. His mind perfectly clear.

Case 2. K. M., female, imbecile. Has marked erotic tendencies. On one occasion a profuse vaginal discharge, coming on rather suddenly, led to the discovery that she had inserted twenty common hairpins into vagina. These were almost inextricably twisted and mixed together, and had to be cut apart before removal. The mucous membrane had several lacerations, which healed rapidly.

Case 3. M. R., male. Forced a finger ring over penis, causing great tumefaction and edema, and temporarily suppressing micturition. The ring was removed with great difficulty, and some laceration was inevitable. Several small sloughs formed, but eventually recovery ensued.

Two men now under care have a propensity for tying rags and strings around the genitalia, to ward off imaginary evils, in reaction to persecutory hallucinations and delusions. On several occasions, when the constriction was too great, unpleasant symptoms have appeared, necessitating surgical interference. It is now a matter of daily routine to examine these men at least three times daily—morning, noon and night, in order to prevent similar occurrences.

E. GENERAL MUTILATION.

Several of my cases have a tendency to mutilate any or all parts of their persons, sometimes abrading or pounding at the same time various portions of the head, body and limbs, and again taking certain territories in rotation.

I have records of forty-seven cases coming under my own observation where the self-mutilation might fairly be called major cases. Minor cases, such as picking at the skin or parts of the body not covered by clothing—as face, neck, hands and wrists—are not uncommon, especially in the melancholia of involution, and in catatonics. Some patients effect what might be called a secondary mutilation by refusing to wear or by removing necessary medical and surgical appliances, as splints, bandages, trusses, etc. Some of these, not content with the above, irritate sores, abscesses, ulcers and wounds, by applying all sorts of unsuitable materials, as salt, pepper, vinegar, and even urine and feces. These patients give us much trouble and worry, and require *incessant care* and watching. Some can be restrained by suggestion and advice, some (not many) abandon the habit spontaneously, and a small number continue more or less regularly their efforts at self-mutilation throughout life. In every case a careful record should be made, and the relatives and friends should be informed, thus enabling us to forestall unjust and unwarranted accusations.

FECAL FORM.

BY FRANCIS LOWELL BURNETT, M.D., BOSTON.

"Go on, O friend! explore with eagle eye;
Where wrapped in night retiring causes lie:
Trace their slight bands, their secret haunts betray,
And bring new knowledge to the light of day;
Till, link by link with step aspiring trod,
You turn from Nature to the throne of God."

Billsborrow to E. Darwin.

During the course of an investigation into the nature of diet, a feature of feces has come to my notice, which I believe will be of value to Medical Science. Dietetics at the present time is concerned largely with the regulation of the kind or the calorie value of the food; but by the use of this observation the expression of some function of the intestine is taken into account, whereby the amount and the kind of food and the manner of taking it, are apparently made subservient to bodily action and better suited to the animal economy. The observation evidently embodies a principle, for it receives undoubted support from the expression of this function in the dung of many animals; and though the function is only now and then expressed in the form of the human feces, it can be acquired by man. Accordingly the principle is sufficiently suggestive to mention now and go on with, so that additional observations will be made and a more precise and practical knowledge of the function obtained to use in the determination of disease.

Oddly enough, the principle has been applied before in rather a remote science. It was sometime ago, indeed, that paleontologists, working over a few of the fossil beds, found some stones that had a peculiar shape. Almost all of them were round in section and elongated; but some showed a simple laminated structure, while others appeared with one lamina twisted on another. Such curious forms naturally aroused interest, and after an extended study they were finally identified as petrified feces, or "coprolites." To identify them was undoubtedly of value; but Owen takes the matter further and makes an application of the principle.[1] He says the twisted coprolites "indicate by their exterior spiral grooves that the ancient Ganoids possessed the spiral valve." Thus it was ascertained from a study of this mineralized excrement, that these prehistoric fish had an intestine of a spiral form.

A still more striking correlation is apparent, however, from a study of the fresh dung of animals; there is a feature seen in that of one species, which appears also in the others, that is, the dung of many animals is composed of units which have a peculiar shape and arrangement. Such an appearance is commonly seen in horse and sheep droppings, in which the units are irregularly oval and packed together. But the combination evidently changes the shape of those within the mass; for a few animals of a lower order discharge discrete units, and these are uniform in shape and size. The dung of the guinea-pig and the rabbit show this distinction: from the former the unit comes as a cylindrical mass with rounded ends; whereas from the latter, it comes as a rather biconvex mass. Again, the units from the cow and the monkey show still different characteristics, for the dung of these animals is discharged in a compact form and made up of units which are disc-shaped. There is a variation, too, in the dung of the dog and the pig; here the units were evidently oval at one time, but by pressure into a single dejection, they are often identified only by lines in the surface of the mass. With the dog a different form is sometimes seen; that is, the dung appears without any lines or in a soft, formless mass. The cause of this change is not obvious; yet, as the dog is domestic, and the instinct of these animals is sometimes dulled by environment, it may be on account of improper feeding. Of the animals alluded to then, although there are minor variations in the shape and arrangement of the units, it is nevertheless true that different units characterize the dung of many species. Doubtless, further variations may be found in the dung of other animals, but as all of those mentioned show this particular character, fecal form evidently follows a well defined principle in the animal series. And, furthermore, since fecal form is common to these animals, it may be regarded as normal.

On the other hand, if the dung of animals expressing fecal form is normal, how may the varied condition of the human feces be considered? In this variation it is often formless, sometimes it shows a few marks, and rarely it is entirely composed of units. The latter, of course, expresses a function similar to that of the lower animals; indeed Schmidt and Strasburger, who have also observed it, call it "Der Schafkotform."[2] Besides, from repeated observations of a single case, the absence of a foul odor, and little or no indol in the urine, suggest little or no putrefaction of the intestinal contents. And, lastly, from a study of this case and a few scattered observations of other cases, the continued expression of this function by man is apparently associated with a definite condition of the body,—one which is, perhaps, an improved state of well-being. It seems not unlikely, therefore, that fecal form is normal or physiological for man. Moreover, as the foul and formless stool shows the loss of a function the intestine is known to express, it seems probable that it is a pathological product and the indication of disease.

In the light of fecal form, therefore, it seems possible to determine a disease caused by the putrefaction of the intestinal contents. This fact gives a perfectly obvious meaning to a condition for some time known as autointoxication; but it also seems likely, on account of the very general character of this disease, to include other conditions of disease—now very obscure

in origin—within the bounds of its activity. For by accepting the foul and formless stool as an indication of disease, it must be one that is very generally in existence, one that is also exceedingly insidious, and though varying a great deal in degree from time to time, it must usually be rather protracted in its course. As a disease of the intestine, however, it would seem to affect the gastro-intestinal tract primarily; but since a stool of this kind also implies an execessive amount of intestinal putrefaction and gives rise to an indirect toxemia, it seems likely, therefore, that it may cause degenerative or sclerotic changes in many tissues and organs. Being a disease of such varying characteristics, there is only one of known origin that at all resembles it, and this is syphilis in its secondary and tertiary stages; for this infection during these periods may exhibit not only many different lesions of the skin, the mouth and the sensory organs, but also cause morbid changes in almost all the tissues of the body. But though the symptoms and lesions produced by the intestinal disease cannot be fully understood at the present time, what is of more importance is that some of the measures necessary to prevent or cure it have been roughly established.

The cure or prevention of this disease is not accomplished by the use of an intestinal antiseptic or indeed any medicine, but simply by changing the habits of the individual, with fecal form as a guide. And the units only must be the guide, because they alone express the action of the intestinal function by which fecal form is produced. However, more observations are necessary, and the following regulations of diet and other measures favor the performance of this function: Eat slowly and regularly—rarely more than three times a day; avoid an excess of fruit, proteid and sweets; sleep a suitable time; exercise moderately; and evacuate the bowel half an hour after breakfast every day. To eat slowly and regularly is probably the most important of these measures, for by these means the food is properly prepared for digestion, and an excess of it is avoided. Accordingly, if an individual is directed in the adoption of these measures so that the stool changes from what may be regarded as a pathological product to one expressing fecal form, the change also implies a gradual improvement in health, and so prevents or diminishes the activity of a disease causing a general disturbance of the body.

Several instructive inferences have been drawn from observations on the case already alluded to, with regard to the effect produced on fecal form by the action of the body. In the first place, there seems to be a relation between supply and demand, for when little food is ingested and a great demand is made upon it by the body,—especially through muscular activity,—the stool shows a formation in which each unit is distinctly separated from the others. The same kind of a stool is also seen sometimes in the feces of a person convalescing from a severe fever, when the demand for nourishment must, likewise, be very great.

Secondly, intestinal rate evidently exerts some influence on the form of the feces. Intestinal rate may be defined as, "the time taken by any portion of a meal to pass through the alimentary canal"; and to measure it, a person can take some rape seed with breakfast, several tablets of charcoal with luncheon, and some millet seed with dinner. In this way the effect produced in the feces usually distinguishes the mass composing one meal from that of another, for the rape seed appear as black dots in a brown field, the charcoal colors the entire mass black, and the millet seed appear as white dots in a black field. Accordingly, if the millet seed which were taken at seven o'clock one evening can be seen in the dejection at nine o'clock the next morning, the rate is fourteen hours; but if there is only a little charcoal—the substance taken at one o'clock—the rate would be twenty hours, and so forth. At times, a decided variation of rate has been found to take place in the action of the intestine of the case observed; indeed, for several months at different periods the rate was consistently rapid at fourteen hours; then, the stool was significant, inasmuch as it was soft, and the units were irregular in size and shape. In one instance, the increase in the rate was probably due to the excessive ingestion of fruit; and in another, to an excess of muscular exercise and a loss of sleep. During these periods, too, the case experienced a mild depression of the mind, a poor appetite, and a gradual loss of weight. However, when the rate is slower, at an average time of about twenty-five hours, the stool is also changed in character, because it is firm, and the units are large and uniform in shape and size. It may be assumed that this rate is about normal, not only on account of the uniformity of the units, but also because of a keener appetite, the occurrence of peculiar borborygmi when hunger is most acute, and an inherent sense of well-being in the individual. The association of a slow intestinal rate with the more perfect action of the function by which these units are formed in the feces, leads to an interesting suggestion. In animals, there is a function of the intestine known as antiperistalsis, by which the contents of a part of the large intestine is moved backward through the gut. At the present time, this function is not known to exist in the human being. Can it be, then, that the function by which fecal units are formed is simply antiperistalsis?

Thirdly, the borborygmi evidently have some significance. They seem to be associated with what is taken as the normal rate; yet at the same time they apparently bear some relation to the demand of the body for nourishment, for when a good deal of muscular exercise has been taken one afternoon and the amount of sleep has been cut short, they are likely to rumble away in the left lower quadrant of the abdomen before breakfast; but under ordinary circum-

stances, they are likely to be heard late in the morning; though now and then the sensation of them may be felt in the afternoon. When the intestinal rate is too slow or too fast, they are not felt at all. Cannon has also observed them.[3]

Lastly, it is interesting to consider the amount of aliment at the service of the body when the intestinal rate is rapid in comparison to a slow one. To make such a comparison, it is best to take a given time. Take the time directly after the dejection, or nine o'clock in the morning, for instance; then, an individual with a rate of fourteen hours would have a portion of dinner of the previous day and the following breakfast, or one and a portion meal masses at the service of the body, whereas, the same individual, with a rate of twenty-five hours, would allow the body three and a portion meal masses. Accordingly, the amount of aliment at one rate will be more than twice that of the other. May not such a variation have some relation to vital resistance or some other phase of disease? A query of this sort can be answered only by further experimentation, but from the previous observations it seems not unlikely that the amount of food ingested, the demand for nourishment, and the intestinal rate—as influenced by various factors—exert some influence on the form of the human feces.

And so the units may vary according to species; they may vary according to intestinal rate and other factors in man; yet in the order and correlation of fecal form, they seem to express some function of the intestine—some natural law, and should be, therefore, a measure of science.

REFERENCES.

[1] Owen: Anatomy of Vertebrates.
[2] Schmidt and Strasburger: Die Fäzes des Menchens.
[3] Cannon: An Explanation of Hunger. American Journal of Physiology, vol. xxix, March 1, 1912, No. 5.

A SUGGESTION FOR IMPROVING THE TRAINING OF OPHTHALMOLOGISTS.*

BY WALTER B. LANCASTER, M. D., BOSTON.

WHAT provision is now made in Boston for the training of oculists? Suppose you were consulted by a young man whose purpose it was to devote himself especially to ophthalmology. If you went over the ground with him you would find a number of courses in the medical schools here, designed, for the most part, to meet the needs of the general practitioner, and a few short courses for postgraduates, which you would hasten to assure him were quite inadequate to provide for his entire special training if he were ambitious to stand well in his chosen field. By all means he should plan, you would tell him, to secure a position as house-officer at the Eye and Ear Infirmary and it would be well to precede this with a similar position at one of the other hospitals where valuable experience would be obtained in general medicine and surgery and in some cases in ophthalmology. We are not considering now what he might do in other cities. Finally, he should obtain a position in one or more of the clinics, join and take active part in the meetings of this and similar societies, study the literature, and by years of work and study he should arrive at a fairly high proficiency in his department.

What are the weak points, if any, in this scheme? First, let us recognize that some such course of training as this has produced ophthalmologists whom we recognize as men of very high rank in their field. But is it not true that their success has been achieved in spite of defects in this system and after overcoming obstacles? Would not the same efforts have led to still greater achievements had some of the obstacles been removed and the road made easier? Under the present arrangement the ophthalmologist is practically *self-taught*. He gets no systematic instruction as house-officer or assistant. The doors of opportunity are thrown open to him; he may enter freely, but he must not expect to be personally conducted. It is true that such a method of education in any subject develops certain valuable traits. It fails, however, to take the fullest advantage of the efforts, failures and achievements of our predecessors, fails to pass on to our successors the full fruits of our labors, so that as far as possible they may begin where we left off. It is characteristic of an early stage of educational progress and is in short, antiquated, wasteful, inefficient and unscientific. It was abandoned generations ago for general medical education.

The need of something different and better—more adequate—has been felt by many. Edw. Jackson has been writing on the subject and has arranged a course in ophthalmology at Denver—not too ambitious, lest it fail to attract those whom it is aimed to help, but a long step in the right direction. In some other places similar steps have been taken.

I am afraid we are not quite ready to establish in Boston a full course leading up to the degree of Doctor of Ophthalmology or Diploma in Ophthalmology, though I have no doubt it will come in time. I wish to ask what is the chief lack and can anything be done to supply it?

The foundations of ophthalmology are anatomy, physiology and pathology. How does the present method fit a student in these fundamentals? He has had systematic instruction in anatomy, including the orbit and its contents and surroundings, in the medical school as first-year student. It would be well if he could go over again later in his course the chapters of anatomy, embryology and histology with which the ophthalmologist has most to do, but it cannot be said that in this department is his most conspicuous lack to be found.

*Read before the New England Ophthalmological Society, Feb. 11, 1913.

In pathology, too, he has had in the medical school an extensive course making him familiar with the general processes—degenerations, inflammations, infections, new growths, etc.—so that when it comes to the manifestations of these processes in the eye the student is already prepared to understand and appreciate what he meets with in the special pathology of that organ.

Quite the reverse is true of physiology. The whole field of physiological optics is *terra incognita* to the medical student, except for what physics he learned before he entered the medical school and except for a week or so devoted to this branch when studying general physiology as a first year medical student. Ample for the general practitioner, in some cases extraordinarily complete, but wholly inadequate for the master of a special field. For two things must be kept clearly in mind. First that the characteristic and distinguished part of ophthalmology —that part which is not found in any other branch of medicine—is physiological optics. Second that physiological optics covers 80 to 90% of the work of the ophthalmologist, since the examination and treatment of nearly every patient involves the application of some part of that large subject. How large that field is only those who have worked in it know, and many of these hardly realize. The second edition of Helmholtz' Physiological Optics contains a bibliography by Koenig down to 1894. This has 7833 titles, but covers only a portion of the field. You know how references multiply as you approach very recent times. Several thousand would have to be added to bring the subject to date. This shows that physiological optics is a subject which has commanded the attention of workers and writers. Much of this is important and has practical every-day bearings. I believe it will average of higher grade than 10,000 consecutive titles taken from any other special branch of surgery or medicine.

Here, it seems to me, is the weakest link of our chain. Physiological Optics is not a subject to be self taught, and if so taught is apt to be neglected. In the first place, apparatus and laboratory facilities are essential to any adequate study of many parts of it. In the second place, most of us would make far more rapid progress with some guidance and help, and it is of great advantage in view of the ever widening scope of medical education—of all learning, in fact—to save time so that less of the field will be left untouched.

I have tried to show that physiological optics is exceedingly important but sadly neglected. I know I have put the case too mildly, but I rely on you who know the facts to add the emphasis you see is needed.

What should be done to remedy this lack? It seems to me that it would be futile to attempt to enlarge the courses on refraction of the type now pretty generally given, courses consisting of some didactic lectures on the theory but chiefly of clinical practice on patients with individual instruction in the use of the trial case, retinoscope, etc. What is really needed is a course of a different type, something laying the foundations broadly and deeply, securing a familiarity with the scientific work that has been done by others, and cultivating as far as possible the scientific way of approaching and solving a problem. A course divided between laboratory and clinical work, giving about two-thirds of the time to the laboratory and one-third to the clinical side, thus securing the scientific point of view and methods of work of the laboratory, and the interest and practical features of contact with patients. A very few patients examined with great exhaustiveness and exactness will be found more profitable, especially at the beginning, than the same amount of time spread over a large number necessarily more superficially treated. It should be more comprehensive, by which I mean that it should include not only errors of refraction and movements of the eye—admittedly the most important part of the subject—but also all other chapters of the large subject in due proportion.

Here is a list of the chief topics to be considered; they should require not less than 300 hours of work besides reading.

	HOURS.
Review of physical optics Dioptrics of the eye	25
Ophthalmometry Ophthalmoscopy Retinoscopy	25
Accommodation Mydriatics	20
Hypermetropia Myopia Astigmatism Presbyopia	100
Binocular vision External muscles of the eye Squint Heterphoria	60
Color sense Pupil Visual fields	25
Light sense Photometry Problems of illumination	30
Psychological problems	15
	300 hours

This program is tentative; suggestions and criticisms will be welcomed. It is not to be supposed that such a brief course will cover fully the whole great field of physiological optics. It is only an introductory course, and it is hoped that a fair percentage of the students taking it will pursue some portion of it further in a more advanced course with research work.

The question may arise whether it is not too dry and unattractive a subject to expect men to choose such a course in it. On the contrary, I believe that it can surely be made deeply interesting to any one who is preparing for ophthal-

mic practice. Like many another subject, when touched upon superficially it is dry and devoid of interest. When one digs below the surface, gets at the heart of the matter, begins to see its bearings and why men have spent so much time and thought on it, then a flood of light is let in and he sees how it applies to and illuminates his every-day work. Not only is the science made interesting, but interest is added to his daily use of it in his practice because he does his work understandingly instead of by rule of thumb. He will probably be interested, even to following up some of the purely scientific problems which have no immediate or obvious bearing on his practical work simply because his scientific curiosity is aroused and he wants to satisfy it. To be sure, there are mathematical methods of treating some of the problems that are far beyond those of us who lack a working knowledge of the higher mathematics. This part of the subject would have no place in such an elementary course as I have outlined. Indeed, it is far from being a large and important part of the field of physiological optics; its importance has been exaggerated as the unknown is apt to be. It can be omitted much better than many other parts of the subject.

Let us make the course interesting because vital, practical, full of contact with the daily problems of the practicing ophthalmologist, by judicious mixing of laboratory and clinical work. But beware of crowding out solid, exact, sound learning and the development of mental fibre and capacity by too eager an effort to free the course from the need of concentrated application—hard work, in short. Even a child will work like a beaver at toy or task if thoroughly interested. Whoever confesses that these things have no interest for him, confesses that he is not interested in what will constitute 75 to 90% of his private practice in ophthalmology.

There are chapters of physiological optics, such as refraction, which require some understanding of geometry. This is for us the irreducible minimum of mathematics, and anyone "who has no stomach for that, let him depart; his passport shall be paid and crowns for convoy put into his purse." He has made a mistake in choosing ophthalmology as his field of labor.

Clinical Department.

AN OPERATION FOR THE CURE OF VAGINAL HERNIA.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

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HERNIAE through the pelvic outlet are rare. They occur in adult life and, of forty cases collected by Macready, thirty-four were in women. The pelvic outlet is protected by the pelvic fascia and the levator ani and coccygeus muscles, which form a sort of diaphragm, and through this pass the rectum, vagina and urethra. If this diaphragm is deficient in one place or another, the abdominal contents would tend to be forced through, and thus give rise to a hernia. But, contrary to what might be expected, because of its low position and structure, these pelvic herniae are infrequent. Herniae have been observed coming through different parts of the pelvic outlet, and have been named according to their anatomic situation but, because of the variety of names, there is some opportunity for confusion. For example, in *ischio-rectal* hernia the tumor enters the ischio-rectal fossa, in *pudendal* hernia the tumor comes through the labium majus, in *perineal* hernia the perineum of the male is the site, in *rectal* hernia there is a protrusion into the rectum, in *obturator* hernia the swelling comes through the obturator foramen, and in *vaginal* hernia the tumor enters the vagina.

So few cases of each variety have been observed and treated that there is only meager evidence of their nature and practically no definite method of treatment.

The following case illustrates the type of pelvic hernia passing down behind the uterus in the fossa of Douglas, pushing the upper portion of the posterior vaginal wall into the vagina and then out the vulva. This is the variety which has been called vaginal hernia:—

This woman is 41 years old, short and rather fleshy. Her general health has been good. As a result of childbearing, there was some perineal laceration. For several years prior to July, 1908, she noticed a swelling which presented at the vulva when she was sitting or was on her feet but which disappeared when she lay down. She suffered from backache and general pelvic discomfort. On the above date she underwent, at one of the hospitals, an operation for rectocele, cystocele, lacerated cervix and prolapse of uterus. These lesions were repaired and the uterus was suspended to the abdominal wall. She made a good convalescence, but as soon as she was on her feet the same swelling appeared at the vulva. In December, 1908, at another hospital, she was operated upon for a rectocele. Again the same swelling appeared at the vulva as soon as she was out of bed. About one year later she gave birth to a child and the labor was uneventful. Her condition remained unchanged as time went on, except that the swelling at the vulva became slowly larger. It was difficult for her to get about with comfort, and the surface of the swelling coming in contact with the labia majora became excoriated. She had much backache, but no urinary or intestinal disturbance. She was relieved on lying down and then was reasonably comfortable. I saw her for the first time about September, 1912.

Examination. She is short, fleshy, and in good general health. The abdomen is rather prominent and there is a median abdominal scar. The vulva is normal. When she lay down, the posterior vaginal wall was very lax, and when she strained this was pushed forward toward the vulva. When she stood this wall was forced out the vulva and made a tumor the size of a fist, which reduced itself on

recumbency. The general appearance was that of a large rectocele, but, profiting by the previous experience of two surgeons, this tumor was examined more carefully with patient in the standing position. The contents of the tumor were lobulated, seemed more or less solid, and could be pushed up away from the vaginal wall, leaving it as a sort of sac. Moreover, the finger in the rectum did not enter the tumor and the rectum itself did not appear to be dilated. The perineum, having been repaired twice, was in good condition. I was led to believe from her history and these observations that the condition had been in the past and was at present that of a vaginal hernia. Having no precedent for operation, it seemed best to explore the pelvic cavity from above and then be guided accordingly.

Operation. Median abdominal incision. The fundus of the uterus had remained adherent to the abdominal wall just above the bladder. At the previous operation a gall stone was detected but not removed. At this time numerous adhesions were felt which prevented palpation of the gall bladder. All the pelvic viscera were free, there being no adhesions anywhere. The hand passed down behind the uterus, entered a pouch which easily admitted the closed fingers and thumb and was thus passed through the vagina and out the vulva. This at once confirmed the diagnosis of vaginal hernia, the sac consisting of a lining of peritoneum and outer coverings derived from all the layers of the posterior vaginal wall. The neck of the sac was large and in the median line. It was obvious that the contents were small intestine.

Technic of Operation. Patient in Trendelenberg position. Median incision. Intestines packed away from the pelvis with long wet gauze strips. The broad ligaments were divided close to the uterus; the anterior half of the uterus was removed down to the cervix, the canal of the uterus being included in this excised portion. The broad ligaments and remaining half of the uterus were utilized later to help form a support to the floor of the pelvis.

The next step was to dissect up the peritoneum from the lining of the sac and deeper portion of the pelvis. A transverse incision was made at the level of the cervix uteri and just behind it, and continued in front across to either side of the pelvis. The posterior edge of the peritoneum was then dissected up and the stripping continued until the rectum and floor of the pelvis were exposed. With care and patience this was accomplished without tearing the peritoneum and the whole lining of the hernial sac was freed. It was obvious that it would be easy to fail in attempting to elevate the peritoneum from the sac and deep portion of the pelvis. This was done by rolling the peritoneum over dry gauze held in one hand, and with the other hand the parts were pushed away, using blunt dissection by means of gauze, smooth forceps or fingers. The peritoneum was moderately adherent to the wall of the sac. It was dissected up from the rectum and laterally to about the level of the cervix. (See diagram.) A cystic right ovary was removed; the other was not disturbed. The lax vaginal wall forming part of the sac, was then pushed down out of the way, to be disposed of later.

A pelvic floor was then made by suturing with chromicized catgut the broad ligaments stretched horizontally across the pelvis and overlapped. The remaining half of the uterus was tilted back over the ligaments, and its two free corners sutured to the pelvic fascia on either side of the rectum, leaving just room for the passage of the rectum. Finally, the peritoneum, which was held out of the way posteriorly, was drawn forward over the floor of the pelvis and sutured to the free edge of the peritoneum in front. Thus the general abdominal cavity was shut off and the pelvic cavity left covered entirely with peritoneum. The abdominal wound was closed by layers in the usual manner.

The next step was the treatment of the posterior vaginal wall from below. Patient was put in the lithotomy position. A curved incision was made, as in the ordinary splitting operation for rectocele at



Sagittal Section showing the Hernia.
B. Bladder.
R. Rectum.
P. Perineum.
U. Uterus, fixed to abdominal wall.
H. Hernial sac, continuous with the general peritoneal cavity.
X. Shows the level of a transverse incision through the peritoneum so as to strip it from the lining of the sac.



Looking down into the pelvis from above to show the reconstruction of its floor.
R. Rectum. B. Bladder
Dotted line shows transverse incision in the peritoneum which was freed from the sac and then replaced after the broad ligaments were stretched across and a portion of the uterus was placed over them so as to extend to the rectum. These structures and the round ligaments are indicated in outline.

the vaginal outlet, and the posterior vaginal wall was separated from the rectum and the tissues lateral to it. This wall contained an excess of tissue because it had formed the chief bulk of the thickness of the sac. It was drawn down and the excess tissue cut off. The edges of the levator ani muscle were freed and held together with interrupted stitches. Although the perineum was in good condition it was made a little more supporting and held with silkworm gut sutures. After the excess of the posterior wall had been removed at its lower free edge, the closure was the same as in any operation for rectocele. After this wall had been freed below, there was, of course, direct communication with the upper field of operation. On this account, although the region was dry, a small rubber dam drain was left in the perineal wound extending up between the rectum and the vagina in order to allow for drainage. This was removed five days later; this wound closed at once. The time of operation was a little over two hours.

Subsequent History. Practically no shock followed this operation. The abdominal wound healed by first intention. There was never any suppuration in the vaginal wound and the parts remained fixed. For two weeks the temperature and pulse were normal and the convalescence was unusually free from discomfort except for the presence of an annoying cough of laryngeal and tracheal origin. During the third week there were subacute symptoms in the right upper quadrant, due to the chronic disturbance caused by a gall stone and local adhesions about the gall bladder. The presence of this condition was known at the time of operation, but it was considered unwise to disturb these parts at that time. At the end of a week this disturbance subsided, and further convalescence was uninterrupted. Patient remained in bed four weeks.

An examination made three months later showed no change in the posterior vaginal wall since leaving the hospital and being about on her feet. There is not the slightest indication of any bulging, and the wall feels hard and resistant. There are no local complaints. There is every reason to believe that relief from the vaginal hernia will be permanent.

SPASTIC PARALYTIC ILEUS.

BY ROBERT M. GREEN, M.D., BOSTON, FOSTER S. KELLOGG, M.D., BOSTON, AND PETER L. HARVIE, M.D., BOSTON.

(From the Gynecologic House Clinic of the Boston City Hospital.)

THESE two cases are presented as examples of a fatal, somewhat rare post-operative complication, and for the sake of the consequent moral in measures to avoid its occurrence:—

CASE 1. The patient, M. P., a woman of 22, married at 19, entered the Boston City Hospital (Gyn. 170-277) on Oct. 23, 1911. Her family history was unimportant. Her catamenia were uneventful until marriage, since when they have been somewhat irregular, but seldom painful. In June, 1909, she was delivered by normal labor of a full-term, living fetus. Her puerperium lasted 12 days, and was apparently uneventful.

Early in February, 1911, she began to be troubled by burning and frequency of micturition, with yellowish-white vaginal discharge, and pain in both lower quadrants of the abdomen. In October, 1911, these symptoms recurred, and became so severe that she entered the hospital seeking relief.

Physical examination at entrance showed the patient well developed and nourished, but anemic. Her hemoglobin was 75%, her white count 12,000. Her temperature was 100° F., her pulse 76. Examination of the head, the extremities, and of the thoracic viscera showed nothing abnormal. The abdomen was distended and tympanitic throughout, with moderate tenderness and slight muscular spasm over both lower quadrants. Vaginal examination showed a parous introitus, intact perineum, bilateral nick of cervix, uterus completely retroverted and retroflexed, and imbedded in a mass of dense, sensitive exudate filling the entire pelvis and involving the uterine adnexa on both sides. The left vaginal vault was much shallower than the right, and in it could be felt a hard, irregularly sausage-shaped mass. There was a profuse white vaginal discharge, a smear from which, however, did not show the presence of gonococci. The urine was acid, normal in color and amount, had a specific gravity of 1.023, and showed the slightest perceptible trace of albumin. Its sediment consisted of squamous epithelial and white blood cells.

The diagnosis was made of bilateral salpingitis and pelvic peritonitis, probably of gonorrheal origin, though the exact time could not be determined at which the patient received the infection.

With the purpose of avoiding operative treatment until the acuteness of the attack should have subsided and some of the pelvic exudate absorbed, the patient was kept in bed in Fowler's position, with ice bags continuously applied to the lower half of the abdomen, with a light diet and abundant catharsis and diuresis. After a few days she was given also a daily hot vaginal douche and glycerine tampon.

Under this treatment, the exudate rapidly absorbed, the mass diminished greatly in size and tenderness, and on Nov. 10, 1911, the patient was discharged from hospital much relieved.

On Dec. 27, 1911, she reëntered the hospital (Gyn. 172-341) with a history of recurrent pain on the right side, chills, fever, but no vomiting.

Physical examination showed her condition much as before, with a mass palpable in each side of the pelvis, the left being more tender than the right. In view of the fact that she had shown no permanent improvement under palliative treatment, operation was now advised and accepted.

Operation (Dr. Green and Dr. Kellogg), under ether anesthesia, in the dorsal position, with the usual antiseptic preparation. A four-inch median hypogastric laparotomy incision was made, and the peritoneum opened without incident. The appendix was found elongated, congested, kinked, and distally adherent behind the cecum, the tip containing a fecal concretion. To bring it into view, considerable traction was made on the ileum, which was grasped for this purpose at a point about four inches distant from the ileo-cecal valve. A double ligature of No. 2 chromic catgut was passed through the meso-appendix close to the base, and the appendix and its mesentery tied off. The adhesions were tied off separately and cut, and the appendix removed. The stump was cauterized with crude carbolic acid, and buried with interrupted Lembert silk sutures. Both Fallopian tubes were found enlarged, kinked, and adherent in the posterior cul-de-sac. Both ovaries were normal. The left tube was

removed, with the escape of some purulent material, of which a culture was taken. The right tube was resected, leaving the proximal half. Both ovaries were left *in situ*. A pressure drain was placed in each lateral cul-de-sac to control hemorrhage. Ventral suspension of the uterus was performed by the Kelly method, and the abdominal wall closed in layers, except at the exit of the drains. A large dry dressing and swathe were applied, and the patient sent to the ward in excellent condition.

Following is the report of the course of the case, subsequent to operation, by Dr. Kellogg, who had immediate observation and charge of her in the ward.

Report of Case Subsequent to Operation. First twelve hours: Returned to ward with pulse 120, good. Good ether recovery without vomiting. Pulse fell to 84.

Second 12 hours: Patient awoke from sleep of several hours, nauseated; soon developed considerable distention, with rising pulse 108. The dressing was taken down, no evidence of external hemorrhage, no dullness in flanks. It was noticed at this time that the lower abdomen was relatively flat and the distention most marked above the umbilicus. There was considerable belching, and sodium bicarbonate increased this with some temporary relief from epigastric pain. Enemata, always with only fair result, were given. Toward morning vomiting of brownish fluid set in, small in amount, often repeated, coming up without much effort. The condition was now considered to be acute post-operative dilatation of the stomach, and a tube was accordingly passed, some gas and about ℥iv of dark greenish fluid with green flakes obtained; stomach then washed with sodium bicarbonate water until wash water returned clear, it being impossible to put in over a pint at a time.

Further enemata of various sorts gave unsatisfactory results and did not diminish distention.

Third 12 hours: A diagnosis of general peritonitis was made. Patient put in high Fowler's position. T. 99.8, P. 100, R. 22. A second attempt to pass the stomach tube, for the purpose of deciding certainly whether or not the stomach was dilated, was frustrated by the patient. Distention increased, especially above the umbilicus and more to the left than the right. Drains were loosened, with no pus but some ooze of serous fluid. Repeated enemata gave fair or poor results and did not lessen distention. Vomiting of greenish fluid continued, as before described.

Fourth 12 hours: P. 126, T. 99.4, R. 24. Distention increased as before. Continued enemata, poor results. Stimulation started. Rectal saline poorly retained. Toward morning pulse poorer in quality, 152.

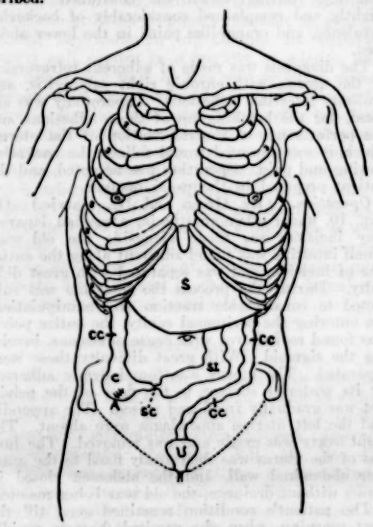
Fifth 12 hours: T. 97.4, P. 160, R. 16. Patient had not vomited for 10 hours. Pulse became better in quality, lower in rate. More comfortable. Distention had not increased. Enemata, with fair result.

Sixth 12 hours: T. 96, P. 144, R. 20. Early in morning patient became pulseless. Two and one-half pints normal salt solution were given into a vein, with return of pulse, good quality, rate 130. Subsequent to this distention rapidly increased, the quality of the pulse became poorer, unconsciousness followed, and ten minutes later the patient died, 81 hours after operation.

Pathological Report. No permission for autopsy was obtainable. Exploration through operative wound disclosed the following conditions:—

The uterus is fixed to the lower end of abdominal wound. The site of the removed tubes shows small amount of clotted blood. There is no fluid or pus in the abdominal cavity. The gut is everywhere shiny, not injected, no fibrin—no evidence of peritonitis. The lower border of a greatly distended stomach is palpable one inch above the umbilicus. There is no gut between the stomach and anterior abdominal wall. The right border of the stomach is in the right anterior axillary line. The left border is in the left mid-axillary line. The liver is pushed up and to the right. The gall bladder feels normal in size and collapsed. The pylorus does not feel thickened. The small gut is distended throughout so far as it can be seen and felt. Four inches from the cecum the ileum for two inches is thickened, dull, slightly reddened, contracted, flat, its internal walls are in apposition and a "half length" enters its calibre only on some pressure. There is no gross injury to the mesentery at this point. Between this and the cecum are two inches of normal undistended ileum, joining the cecum, which is not distended. The region of the appendix stump is not remarkable. The ascending and descending colon is not disturbed.

The accompanying sketch is an attempt to represent diagrammatically the conditions thus described.



Spastic Paralytic Ileus.

S. Stomach (distended) C. C. Colon (collapsed)
C. Cecum S. I. Small intestine (distended)
A. Appendix stump (buried) U. Uterus (suspended)
S. C. Spastic Constriction

From this it appears that this patient died, not of peritonitis, but of intestinal obstruction, due entirely to an annular constriction of the ileum, developing at the point where it had been grasped in order to exert traction on the cecum.

This spastic constriction must have been directly caused by surgical trauma to the smooth muscle fibres and their interlacing sympathetic nerve-plexuses.

A year later the following case repeated these conditions under somewhat different circumstances:—

CASE 2. M. F., 31. Widow. Nullipara. Entered B. C. H. (Gyn. 187-125), on Jan. 2, 1913, with complaint of irregular flowing for past three weeks, with headache, indigestion, and pain in the lower part of the abdomen for a much longer period, in fact ever since a laparotomy done 6 or 7 years before for "inflammation of the left tube and ovary." Her history was otherwise unimportant.

On physical examination she was found to be well developed and nourished, slightly obese and flabby; her heart and lungs were normal. The abdomen was full, soft, tympanitic throughout, with a well-healed median hypogastric linear laparotomy scar. Vaginal examination showed a stretched introitus and intact perineum and cervix. The uterus was completely retroverted and adherent. In the right vault was a hard, non-sensitive mass, the size of a hen's egg. The left vault was empty. There was a slight bloody discharge. Urine, normal. T. 99.4°, P. 88.

The patient was kept under observation for several days, during which she continued to flow slightly and complained considerably of backache, flatulence, and cramp-like pains in the lower abdomen.

The diagnosis was made of adherent retroversion of the uterus, with chronic right salpingitis, and probably intestinal adhesions. Laparotomy was advised, for the breaking up of these adhesions and the performance of ventral fixation of the uterus, which it was expected would relieve the backache, flowing and pain. Operation was accepted, and the patient prepared in the usual manner.

Operation. (Dr. Green and Dr. Harvie.) On Jan. 10, under ether anesthesia, a median laparotomy incision was made alongside the old scar. Small intestine was found adherent along the entire line of incision, and was separated with great difficulty. During the process the intestine was subjected to considerable traction and manipulation. On entering the peritoneal cavity, the entire pelvis was found roofed over with dense adhesions, involving the sigmoid. With great difficulty these were separated. The uterus was found firmly adherent by its posterior surface to the floor of the pelvis, but was gradually freed and raised. The appendix and the left uterine appendages were absent. The right ovary was cystic and was removed. The fundus of the uterus was then firmly fixed to the anterior abdominal wall, and the abdomen closed in layers without drainage, the old scar being resected.

The patient's condition remained good till the next morning, when she vomited, became rapidly distended, bowels could not be moved, and in spite of treatment she grew rapidly worse and died 26 hours after operation.

Permission for autopsy was refused, but post-mortem examination through the operative wound showed a condition essentially similar to that described in the first case. The stomach and upper portion of the small intestine were immensely dilated. At the point where the intestine was separated along the line of incision, there was a spastic annular contracture involving about an inch and a half of the gut. Distal to this point the remainder of the small intestine and all the colon was collapsed. There was no evidence of peritonitis.

CONCLUSIONS.

The cause of death in these two cases was intestinal obstruction from a localized tonic contraction of the circular smooth muscle fibres of the small intestine, due to surgical trauma. Kelly and Noble[1] describe the condition under the term dynamic or hyper-dynamic ileus, and state that it constitutes 2% of all cases of intestinal obstruction. From the nature of its pathology, which is probably a mechanical injury to the plexuses of Auerbach and Meissner, the most convenient descriptive term for the condition seems to be spastic paralytic ileus.

The moral of these two cases is the immense importance of avoiding all pinching trauma to the bowel during laparotomy. In the second case, this was perhaps inevitable, in the first it might easily have been prevented. The small intestine seems much more liable than the large to spastic paralysis. Hence in appendicectomy, traction should *never* be made on the ileum for the purpose of bringing the cecum into the wound, but only the large intestine should be employed for such traction.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1912.

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CONTENTS.

TUMORS:
Experimental Cancer Research.
Neuroblastoma.
Chloroma.
INFECTIOUS DISEASES:
Syphilis.
Trypanosomiasis.
Cultivation of Spirochetes.
Experimental Pneumonia.
Poliomyelitis.

IT is the purpose of this review to include recent advances in the pathology and etiology of diseases which are liable to be of interest to the general medical reader. The small attention paid to pathological anatomy and histology does not mean that a great deal of work has not been done, but with the present highly developed knowledge of lesions, it could not be otherwise than that original papers along these lines should be too highly specialized and technical to be of great interest to the general reader.

The bulk of the work published from pathological departments, which is of interest, has been along experimental lines. A great deal of

[1] Gynecology and Operative Surgery, vol. ii, pp. 397-398.

it has been done in laboratories connected with departments of medicine, surgery, and even physiology. There is a decided tendency of growth in one sort of pathological research, away from pathology and towards departments presided over by heads of clinical departments, and this type of work, namely, the application of chemical methods to the study of disease processes, is one of the most important fields of research in medicine today. The tendency of growth already noted, seems to indicate beyond doubt that this line of research belongs with the clinic.

Of general interest in the consideration of the development of pathological physiology is the invention by Folin of a series of new methods applicable to problems in metabolism, and requiring such small quantities of material, blood, urine, feces and perhaps even lymph, that observations can be made upon human beings over extended periods. Another important contribution to possibilities is the perfection of methods for the study of respiration which can be applied to hospital cases, largely contributed by the Carnegie Institute in Boston.

In this review, many interesting subjects have been omitted because their bearing is chiefly clinical, and should be included in a review of progress in medicine.

EXPERIMENTAL CANCER RESEARCH.

The most important recent contribution to the etiology of malignant tumors is a series of observations made by Rous on tumors of fowls, which are inoculable, and which may be transmitted by the injection of bacteria and cell-free filtrates. Rous' first report was made two years ago (*Journal of Experimental Medicine*, 1910, Vol. 12). The tumor was a spindle cell sarcoma which could readily be transferred to fowls of the same strain. Apparently when the tumor filtrate is injected, injury must be done to cells before the new growth can take origin (*Journal of the American Medical Association*, Vol. lviii, No. 23). If the filtrate is injected into the blood stream, taking especial care not to allow it to come in contact with the vessel walls where punctured, no tumor formation occurs, but if foreign inert substances are added, multiple tumors form. Similarly, in direct injection into the tissues, the tumor first takes origin along the needle path. The nature of the filterable agent which causes this sarcoma is puzzling. It will pass through Berkefeld filters holding back minute bacteria, although it will not go through the Chamberlain F filter. All attempts to demonstrate the organism with the dark field apparatus have been futile. Heating to 55 degrees centigrade destroys this tumor-producing substance; likewise toluol, chloroform 50% alcohol and 2% phenol. It is rapidly destroyed by bile and by saponin, thus behaving like animal organisms in distinction to bacteria. The nature of the virus producing this chicken sarcoma suggests very strongly a living organized agent, although this has by no means been proved. Very recently Rous reported a second chicken tumor; this time an osteochondro sarcoma, which is produced by a filterable agent (*Journal of the American Medical Association*, Vol. lix, No. 20). The finding of this second type of tumor, which is reproduced by the injection of bacteria, free and cell-free filtrates, is of great significance, in that it shows that there is a selective behavior to the filterable agent. In the case of the first tumor, discovered by Rous, the growths are invariably of the spindle cell sarcoma type; in the second tumor, they are always of the osteochondro sarcoma type. Rous concludes that these substances are probably living viruses, and that these findings with the chicken tumors largely demolish the theoretical basis on which objections to an extrinsic cause for cancer have been built up.

In connection with the subject of cancer in animals, the report by Irwin F. Smith, pathologist in charge of the Government Laboratory of Plant Industry, on the structure and development of crown gall is of great interest (Bureau of Plant Industry, United States Department of Agriculture, Bulletin 255). Smith terms crown gall a plant cancer, and one is forced to admit that these growths in plants resemble in general aspects the behavior of tumors in animals. Crown gall occurs in a variety of plants, and may affect any part of the root or plant shoot. The growths are composed of plant cells, individually similar to normal plant cells, but failing to differentiate and to produce normal plant structures. Smith has proved the infectious nature, and has been able to isolate a bacterium, which, when injected, will produce these tumors. Smith's evidence for considering the crown gall growth to be of the nature of a neoplasm is well founded. The demonstration of a specific cause for the proliferation is of unusual interest, particularly when viewed in the light of Rous' experiments with fowl carcinoma.

NEUROBLASTOMA.

A fairly large number of cases have been reported during 1912 of the type of tumor to which Wright first called attention in 1910, and called by him neurocytoma or neuroblastoma (*Journal of Experimental Medicine*, Vol. 12, No. 4). L. Pick has recently written a monograph (*Berliner Klinische Wochenschrift*, 1912, Nos. 1 and 2), collecting all the reported cases of tumors of this type, that is, malignant tumors arising from embryonic sympathetic nerve cells, giving the name *Ganglioma Embryonale sympathetisum*. He corroborates the work of Wright by agreeing that these tumors arise in nests of embryonic sympathetic nerve cells. By special staining methods the fibril formation can always be demonstrated, if the material is fresh. In some instances, the fibrils are very easily found. These tumors are most often found in the adrenal

glands; oftentimes in combination with multiple tumors of the liver, tumors in the skull and in the lymph nodes. It is now certain that the cases of simultaneous tumors of the adrenal glands and orbit, known as Hutchinson's syndrome, are tumors of the sympathetic nerve type. In another paper (*Zeitschrift für die gesamte Neurologie and Psychiatrie*, Bd. 6, Heft 4), L. Pick and M. Bieschowsky have collected cases and summarized knowledge concerning the ganglio-neuromata of the brain, and show that these tumors are not excessively rare.

Following these publications of Pick, there have been other cases reported in this country by Symmers (*Journal of the American Medical Association*, Vol. lx, No. 5), and abroad by Friedrich (*Frankfurter Zeitschrift für Pathologie*, Bd. 10, 1912, Heft 3) and Landau (*Frankfurter Zeitschrift für Pathologie*, Bd. 11, 1912, Heft 1). These papers, unquestionably stimulated by the publication of Wright's, definitely establish the existence and frequency of a hitherto not generally recognized group of tumors.

The writer of this review has seen two unpublished cases, both occurring in Montreal. One from the prenasal fossa of a child with metastases in the cervical lymph nodes, and another from an adolescent female with generalized metastases to bone, liver, lungs and lymph nodes; this latter tumor was probably primary in the adrenals.

It may safely be predicted that a large number of such cases will be reported from this country and abroad during the next few years.

CHLOROMA.

The German literature of the last few years contains numerous reports of cases of so-called chlor-leukemia, and in fact, in nearly every case of chloroma recently reported, leukemia has existed. A concise statement of the present knowledge on chloroma is to be found in the paper by Burgess (*Journal of Medical Research*, Vol. 27, No. 2, November, 1912) who reviews the literature and reports two new cases. Burgess' conclusions, which are fairly conclusively supported by the evidence he presents, are that the tumors called chloromas are simply green tumors, which represent a part of the pathological processes in leukemia; that the type of leukemia is myelogenous leukemia and not lymphatic leukemia. The absence of granular cells is simply indicative of the acuteness of the process and the invasion of the blood and tissues by myeloblasts, which are not yet differentiated. The conception that myelogenous leukemia is a blood metastasis of a true tumor, whose origin is in the bone marrow, and whose cells invade the blood stream and the bone marrow, explains the connection between leukemia and chloroma. According to Burgess, in certain cases of myelogenous leukemia, in which the cells are largely undifferentiated and multiply rapidly, other tissues are invaded. Some times in this way, nodules of tumor cells are formed. These masses, if green, are called chloroma. These conclusions of Burgess are in general agreement with recent work done abroad. Burgess has materially contributed to the general knowledge by virtue of the superior technical methods he has employed. The nature of the color of the tumors still remains somewhat of an enigma. It is to be noted in this connection, that the layer of white cells obtained by centrifugalizing blood of myelogenous leukemia cases always has a distinct greenish color.

SYPHILIS.

The most important contributions to the pathology of syphilis, aside from the cultivation of the spirochete and the completion of the requirements of Koch's Laws, are a few new facts regarding the distribution of the treponema in tissues. Warthin, in a number of papers, which are briefly summarized under the heading, "Cardiac Syphilis," (*Ohio State Medical Journal*, March, 1912), has reported 12 cases of sudden death in children and infants, due to cardiac insufficiency. There was no suspicion of congenital syphilis; furthermore, there was nothing that would be attributed by the pathologist to syphilis, but on examination of various tissues by Levaditi's method, spirochetes, associated with certain histological changes, have been found. He has come to the conclusion that there is a certain form of myocarditis which is dependent upon the presence of colonies of spirochetes in heart muscle. In 35 cases of acquired syphilis in the adult, he has found myocardial changes associated with the presence of spirochetes. The majority of these cases were supposed to have been successfully treated, and in some of them not even the attending physicians associated the final conditions with syphilis. The great importance of Warthin's work is that unexplained death due to myocardial changes may rest solely upon the lesions produced by the *Treponema pallidum*, in cases giving practically no other evidence of syphilis.

Noguchi and Moore (*Journal of Experimental Medicine*, Vol. 17, No. 2) have demonstrated the *Treponema pallidum* in 12 out of 70 brains, from cases of general paresis. The age of the cases varied from 33 to 60 years; 10 were men and 2 women; 7 were of the cerebral type and 5 of the tabetic. Anatomically the brain showed the usual thickening of the pia and microscopically there was the usual infiltration with plasma cells and lymphoid cells in the meninges and around the vessels. The spirochetes were found distributed in the substance of the brain, singly and in groups, and oftentimes, far in the substance, away from the vessels, and unsurrounded by evidence of any cellular reaction.

These findings are of great importance in that they demonstrate that paresis is a syphilitic affection; that the lesions are due to the presence of the parasites, and not to toxic substances elaborated elsewhere.

TRYPANOSOMIASIS.

Trypanosomes have been found in the blood of domestic cattle in every part of the globe, and a recent bulletin of the United States Department of Agriculture (Bulletin No. 145, Bureau of Animal Industry, Howard Crawley) shows that trypanosomes exist in the blood of 75% of yearling and adult American cattle. These trypanosomes are only to be demonstrated by making blood cultures, that is, adding large quantities of blood to bouillon. The trypanosomes multiply in the layer of white cells and platelets that forms above the bottom layer of red cells. Crawley has given the name *Trypanosoma americanum*.

Work done in Nyassaland during 1912 by Bruce, Kinghorn and Yorke and their associates, has conclusively established the status of *Trypanosoma rhodesiensi* as a new species, parasitic for man. This trypanosome has been found in a fairly large proportion of antelope. Experimentally it has been transmitted by *Glossina morsitans*, which is the common tsetse fly of dryer regions, and hitherto supposed to transmit trypanosomes pathogenic for cattle only. The great importance of this work is evident, and it will unquestionably be productive of campaigns against trypanosomiasis along new lines. This work on trypanosomiasis is abstracted in *The Sleeping Sickness Bulletin*, and the *Tropical Diseases Bulletin* of London, directed by A. G. Bagshawe.

Wolbach and Binger (*Journal of Medical Research*, September, 1912) in a research directed towards ascertaining the factors concerned in the production of the lesions of trypanosomiasis, have shown that the trypanosomes do not remain confined to the blood vessels and lymphatics, and that they invade the connective tissue structures of all organs and the substance of the brain. The finding of trypanosomes in the substance of the brain, remote from the lesions, indicates that they migrate freely, and also that the pathology, which closely resembles that of general paresis, is due to the actual presence of the trypanosomes in the meninges and brain substance. In general, they conclude that the lesions of trypanosomiasis are due to the presence of the trypanosomes in the affected tissues. Previous theories considered chiefly the possible effect of toxins elaborated in the blood stream.

CULTIVATION OF SPIROCHETES.

Noguchi has been most active during the last year with cultivation experiments, using spirochetes from many sources. His method for cultivating the *Treponema pallidum* seems to be simple and more certain than those of European workers. His first paper was published in the *Journal of Experimental Medicine*, Vol. 14, and here the material employed consisted of lesions produced in rabbits. Later, *Journal of Experimental Medicine*, Vol. 15, he succeeded in cultivating the *Treponema pallidum* directly from human lesions, and has shown that these cultures are pathogenic for monkeys. To Noguchi belongs the credit for first fulfilling all the requirements of Koch's Laws for the spirochete of syphilis. His medium consists of combinations of sterile ascitic fluid and agar, to which pieces of fresh sterile rabbit tissue is added, kidney or testicle. Strict anaerobic conditions are maintained by filling the tubes to a considerable depth, and covering the medium with a layer of paraffin oil. In his early work, these tubes were placed in an oxygen-free atmosphere of hydrogen. The success of Noguchi's method depends on the fact that after stab cultures have been made in his medium, consisting of two parts of slightly alkaline nutrient agar jelly and one part ascitic fluid, the spirochetes multiply and migrate out, away from the line of puncture and bacteria, so that after two or three weeks of incubation at body temperature, hazy zones are obtained, which consist of colonies of spirochetes. By making repeated transfers, he had been able to separate mixed cultures of spirochetes, and has paved the way for important work on the study and differentiation of the mouth spirochetes. So far, he has cultivated three different new spirochetes from the mouth cavity: *Treponema microdentium*, *Treponema macrodentium* (*Journal of Experimental Medicine*, Vol. 15, No. 1) and *Treponema mucosum* (*Journal of Experimental Medicine*, Vol. 16, No. 2). The last named came from a case of pyorrhea alveolaris and is distinguished from other mouth spirochetes by the production of mucin. In morphology, it is very much like the *Treponema pallidum*, from which it is distinguished, by the production of mucin, and a fetid odor in cultures.

Other spirochetes which Noguchi has cultivated are: *Spirocheta phagedenis*, a new species which he found in phagedenic lesions on human external genitalia (*Journal of Experimental Medicine*, Vol. 16, No. 3). *Treponema calligyrum*, a new species from condylomata of man, *Spirocheta refringens*, and a whole series of spirochetes of the relapsing fever type, including *Spirocheta obermeiri*, *Spirocheta duttoni*, *Spirocheta kochi*, *Spirocheta novyi*, (*Journal of Experimental Medicine*, Vol. 16, No. 2) and *Spirocheta gallinarum*, the spirochete of fowls (*Journal of Experimental Medicine*, Vol. 16, No. 5).

The importance of these methods of Noguchi, and his success with them cannot be overestimated, as it opens a field for systematic investigation of spirochetes and pathological processes produced by them. As yet, no one has confirmed Noguchi's work. One reason may be that he gives rather meagre details, and in work of this character, personal niceties of technic are of greatest importance.

EXPERIMENTAL PNEUMONIA.

Lamar and Meltzer (*Journal of Experimental Medicine*, Vol. 15) report a series of experiments

on dogs in which they produced pneumonia in 42 successive cases with a mortality of at least 16%. Their method is to introduce pneumococcus cultures by intratracheal insufflation. They claim to have produced a typical lobar pneumonia. Control experiments with salt solution, broth serum and mixtures of serum and soap solution injected in the same way as the cultures did not produce consolidation. Other experiments with streptococcus and influenza bacillus produced a type of inflammation quite different from the consolidation produced by the pneumococcus. In a few instances they produced lobar pneumonia with Friedlander's pneumo-bacillus. This work has attracted considerable attention, because it claims to be the first successful experimental production of lobar pneumonia in animals.

POLIOMYELITIS.

The most important work of the past year in poliomyelitis has been directed toward the manner of transmission. Rosenau, as is well known in this community, reported at the International Congress of Hygiene in Washington in September, successful transmission experiments with the ordinary stable fly, *Stomoxys calcitrans*. This work was shortly afterwards corroborated by Anderson and Goldberger of the Public Health and Marine Hospital Service.

In the report of the State Medical Institute of Sweden to the Fifteenth International Congress of Hygiene, held in Washington, 1912, a large number of careful experiments directed towards the demonstration of the presence of the virus of poliomyelitis on the mucous membranes of abortive cases and healthy persons are recorded. In six families the existence of carriers of the virus were found. In three families, several virus carriers were found, although in no family was there more than one typical case with paralysis. These experiments have been criticized by Flexner on the ground that, while the monkeys injected with the mouth and nose washings of the suspected individuals developed paralysis and sometimes died, they did not show the characteristic pathology of poliomyelitis. Distinct lesions, however, were found, the atypical nature of which the experimenters attributed to the diminished virulence of the virus.

Flexner, Clark and Fraser (*Journal of the American Medical Association*, Vol. lx, No. 3) describe an instance in which they obtained from the healthy parents of a child suffering from an acute attack of epidemic poliomyelitis, material which when injected into monkeys gave characteristic symptoms and pathology of poliomyelitis. This material was obtained by irrigating the naso-pharyngeal cavities of the mother and father with normal saline. The experiment proves in a more conclusive manner than the Danish invesigators were able to do, that apparently normal humans may harbor the virus of poliomyelitis.

Of even greater interest is the report by Flexner and Noguchi (*Journal of the American Medical Association*, Vol. lx, No. 5) of the cultivation of the virus of poliomyelitis. The technic employed was essentially that of Noguchi for the cultivation of spirochetes, which is described elsewhere in this review. Colonies were obtained in the ascitic fluid agar medium, which were composed of minute globoid bodies just within the microscopic range of vision. Cultures from human tissues in the third, and from monkey tissue in the fifth generation have caused typical experimental poliomyelitis in monkeys. Other experiments by the authors are in progress with a view of excluding a remote possibility of the virus being passively carried over from test tube to test tube.

These cultivation experiments, if capable of confirmation, will have a tremendous effect on the investigation of diseases produced by filterable micro-organisms, for it is certain that at least some of the principles underlying the problem of the cultivation of filterable organisms will have been solved.

(To be continued.)

Reports of Societies.

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF MONDAY, JANUARY 27, 1913, AT 8.15 P. M.

The President, DR. H. R. M. LANDIS, in the Chair.

A CONSIDERATION OF CERTAIN TYPES OF ARTHRITIS DEFORMANS AND THEIR MANAGEMENT.

ROBERT B. OSGOOD, M.D., Boston: Proof of the existence of arthritis deformans goes back to three thousand years B. C. The views expressed tonight will be from an orthopedic point of view, and we shall leave unsettled the question whether we are dealing with one or more than one distinct disease. We shall adopt a temporary nomenclature, which we realize is imperfect, but attempt to define what seem to us distinct clinical types. The four types to be discussed are: Infectious, Toxemic, Atrophic, Hypertrophic. We find it difficult to connect acute articular rheumatism in any way with the chronic manifestations of arthritis deformans, and we believe it has no causal relation. We have been equally successful in associating true gout with the types to be discussed. By the chronic infectious polyarthritis we mean an arthritis usually of more or less sudden onset. If unaffected by treatment, the disease is commonly progressive. We may include in this type those cases of gonorrheal arthritis in which the cocci may be recovered from the joints and those cases in which other bacteria have been found either in the joint effusions or in the tissues, especially the villi removed at operation. In the second type, chronic toxemic polyarthritis, we may include the cases of chronic polyarthritis following influenza, associated with chronic infections of the nasopharynx and sinuses, ulcerative processes in

the intestines, the so-called auto-intoxications often in association with enteroptosis, and that form of arthritis deformans known as Still's disease. Careful search has failed to find the actual presence of bacteria in many of these joint conditions in which the early picture is in all respects consistent with the existence of an infection. The third, or chronic atrophic polyarthritis, is clinically to our minds almost if not quite an entity. The clinical histories of this type less strongly suggest the direct result of an infection or its toxic products. The picture is like some trophic disturbance of central nervous origin. We believe these are the cases that have so strongly suggested the neural theory of the etiology of the so-called rheumatoid arthritis. In the chronic hypertrophic polyarthritis type we are inclined to the belief that we are dealing with an arthritis deformans so essentially different from the other types that it may be considered from the point of view of symptomatology and treatment as an entity. A separate heading has been made of spinal forms, because of the confusing nomenclature. Grouping the first two of these four divisions together, three types of arthritis deformans then seem to us to be clinically distinguishable, the infective or toxemic, the atrophic and the hypertrophic. We shall try to show later that the pathologic examination and the x-ray findings seem to consisently suggest a certain purity to these types. In regard to etiology, we have arbitrarily made the first division on an infective basis. The second type we also believe strongly to be the result of either some undiscovered direct invasion of the joint tissue by bacteria or more probably to result from the development of one or more than one toxic substance by various forms of bacterial growth within the body, taking place in the nasopharynx, the intestines, or some other focus. As to whether in the third, or atrophic type, the toxic effect is exerted first on the central nervous system and secondarily on the joint tissues we have no certain proof. The evidence seems to us to point to the correctness of this theory of Painter, Jones and others. The fourth type, hypertrophic arthritis, seems to us to be much more likely the result of faulty metabolism than of an infection or an infectious toxemia. In the first three types no effort should be spared to obtain the most perfect hygienic conditions of living with as much life in the open air as possible. The first step in the management of the infectious and toxemic joints should be a most careful search for a focus of infection. A suggestive article by Pemberton indicates how much can be done by the careful supervision of the diet. We have come to believe strongly that the constantly found enteroptoses may be one of the factors in faulty alimentation. Much may be expected from conservative surgery. In regard to vaccine therapy, it seems to us that our attitude should be one of receptive skepticism so far as the cure of arthritis deformans is concerned. The search for an infectious focus in the atrophic type has been attended with less success than in the two preceding. We must conserve the strength and improve the nutrition of these patients by every means at our disposal, especially by attention to the habitual splanchnoptosis. In the hypertrophic type the search for a focus of infection has been rewarded with no success. We have little to say regarding drugs in arthritis deformans because of the conviction that empiricism, rather than scientific evidence of their value has encouraged their use.

Until we find the cause of arthritis deformans we must seek out all possible sources of infection. We must attempt to make the processes of alimentation and all other physiological processes as normal as may be. But whether successful or not, we must never lose sight of the fact that this form of chronic disease is one which calls for the greatest friendliness, encouragement and effort on the part of the physician.

Dr. Osgood's paper was discussed by Dr. Thomas McCrae and Dr. G. G. Davis.

Dr. Mary Rowley-Lawson, Fellow of the Rockefeller Institute, gave a lantern demonstration on

THE INTERPRETATION OF THE MALARIAL "RING FORM" PARASITE.

This paper was discussed by Dr. Alfred Stengel.

Book Reviews.

Electro-Therapeutics for Practitioners. By Francis Howard Humphries, M.D., F.R.C.P., M.R.C.S. Illustrated. New York: Longmans, Green, and Company. London: Edward Arnold. 1913.

This volume consists of a series of "essays on some useful forms of electric apparatus and on some diseases which are amenable to electric treatment." It aims to supply to the general practitioner information about the useful forms of electrotherapy, and about the principles to be observed in the selection of cases therefor. In general, the author believes electricity indicated symptomatically for the relief of pain, in neurasthenia, insomnia and a variety of functional disorders, and in certain skin affections and some forms of malnutrition. The technic and apparatus are everywhere thoroughly described, and there is a useful terminal glossary of electric nomenclature. In his historic introduction, the author points out that the disrepute of electrotherapeutics is largely due to its unfortunate practice by charlatans and to improper selection of cases. His work shows that its field is legitimate and its possibilities of benefit not unimportant.

The Practitioner's Visiting-List. Philadelphia and New York: Lea and Febiger. 1913.

The annual issue of this visiting-list, for thirty patients a week, provides amply and satisfactorily for the work of the average practitioner. Prefixed to the record pages is the usual text of useful information. This is the twenty-ninth year of publication of this standard memorandum-book.

Genitourinary Diseases and Syphilis. By HENRY H. MORTON, M.D., Clinical Professor of Genitourinary Diseases in the Long Island College Hospital, Genitourinary Surgeon to the Long Island and King's County Hospitals and the Polhemus Memorial Hospital, Consulting Genitourinary Surgeon to the King's Park State Hospital and the Beth Israel Hospital of Newark. Member of the American Urological Association, Fellow of the New York Academy of Medicine, etc. Third edition; revised and enlarged. Philadelphia: F. A. Davis Company. 1912.

The present edition of Dr. Morton's book is in many respects an improvement upon the two preceding ones. It treats somewhat more fully of certain parts of the subject or field of diseases that it presents and brings others up to date.

There is much to commend in the volume, but we do not feel that the subjects treated under some of the headings can possibly be properly or at all fully presented in so very short a space as the author has given to them and must characterize certain of them as being entirely inadequate, while at the same time they do not possess the advantage of compendiums in succinctness.

Examples to which this criticism apply are the following: Urinary fever and acute septic anuria occupy but four or five pages; twelve pages only are given to the important subject of tumors of the bladder. Tumors of the renal parenchyma are disposed of in less than two pages, etc., etc. On the other hand, the subjects of gonorrhea and syphilis are treated admirably and the recent progress made in connection with the treatment of the latter malady is well set forth. The writer is conservative in his estimate of the curative properties of the salvarsan treatment and does not take note of the instances of a second inoculation in the human being, as well as in apes, of the disease after an original infection with syphilis was treated by salvarsan, which, though few in number as yet, seem to show that in some cases at least the drug has undoubtedly effected a cure.

The subject of hypertrophy of the prostate and its treatment also receives adequate consideration and is acceptably set forth, as are a number of others.

On the whole, the criticism which suggests itself to the reviewer as being applicable to the book as a whole, is that it is not so complete a manual for students or for the practitioner of medicine as are some others already in existence, and therefore, despite its excellent qualities in many parts, it does not fill a place that greatly needed to be filled and falls short of doing so in some essential respects.

As a bit of book making the work falls below the standard set in some other publications, both in arrangement of subjects, index, and illustrations, though it is well above those of books published until within the last six or eight years in these respects.

We feel reluctance in not being able to commend the work more highly, because of the high reputation and deservedly high position won by its author in this field of surgery, but we cannot say that it comes up to the standard that is required by the great advance in knowledge that has taken place in this field in common with that made in so many other branches of surgery, or that it deals with its subjects as adequately as any one of half a dozen other books already before the medical public. We take pleasure, however, in repeating that it contains much that is of most excellent character.

The Prospective Mother. A Handbook for Women During Pregnancy. By J. MORRIS SLEMONS. New York and London: D. Appleton and Company.

Dr. Slemons, with keen insight and tact, has interpreted for the prospective mother the difficult scientific knowledge of today on which the art of obstetrics is based. In simple language he has revealed the intricate secrets of Nature in her most beautiful and most profound moments.

His words, based on wide experience and deep researches, should inform the ignorant, encourage the timid, and quiet the fears and anxieties of the inexperienced. The book is not only a safe one to put in the hands of a lay woman, but may also be made her greatest safeguard; a guide in simple matters, informing her when to turn to her physician, and an aid in carrying out his instructions.

Dr. Slemons deserves the gratitude of the physicians by putting in their hands a safe guide for their obstetric patients, which should save minutes and hours of explanation and instructions and prevent misunderstandings by giving reasons for elaborate preparations which to some might seem needless precautions. The conscientious obstetrician has thus received an advocate of real power.

The public should be a large gainer by the high standard set before them for obstetric service to the mothers of our citizens. Not until the public is informed what good obstetric service is and is convinced of its worth will it demand that good service for which it must be willing to pay. Such a book takes the public freely into our confidence in another branch of medicine and thus brings us one step closer to a complete mutual understanding. We hope this book will be an awakening to the general public to the demands of modern obstetrics.

The book is optimistic, pleasantly suggestive, clearly expressed and easy reading even to the lay woman. Her fears are met and allayed. It should be welcomed by the physicians practising obstetrics and by their intelligent patients.

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IMMIGRATION IN 1912.

It is generally conceded that immigration holds a very intimate relation to the national public health, not alone in respect to the actual diseases that may be imported, but more especially with reference to mental or physical defects that may be handed down to future generations, in short, from the eugenic aspect. While there is a considerable unanimity of belief that unsound immigrants should be excluded, there is great divergence of opinion as to how this object shall be accomplished. This was illustrated in the wide discussion attending the recent attempt in Congress to add to the present admission requirements a literacy test, and to secure federal inspection of steerage passengers while in transit on steamers to this country. Probably more effective than this would be a preliminary inspection of prospective immigrants at their ports of debarkation by United States officials, and it is to be hoped that this may be brought about before long.

The report of the Commissioner General of Immigration for the fiscal year 1912 gives some interesting data on the sources of immigration for the year. Of the 838,172 immigrants entering the United States in 1912, 161,290, or 19.2%, came from Northern and Western Europe, from the Teutonic and Celtic races, and 570,130, or 68.0%, came from the Iberic and Slavic races of Southern and Eastern Europe and Western Asia. This reverses the proportions coming before 1880, when about four-fifths were drawn from Northern and Western Europe. Russia, particularly Southern Russia, and Italy contribute 19% each of the total. Hungary was next, with 11%, then Austria with 10%, Greece 3%, Turkey in Europe and adjoining principalities 2%, and Spain and Portugal less than 2%. One per cent. of the total were from Japan, China and India. The significance of this preponderance of the Iberic and Slavic races lies in their poorer physical and mental equipment, and their radically different ideals and standards of living as compared with the Celtic and Teutonic races.

The following table, compiled from the Commissioner General's report, shows that for the last five years there has been a fairly constant number of aliens debarred on medical grounds.

Proportion of Immigrants Debarred in Last Five Years for Medical Reasons.

Year.	Total Immigration.	Debarred per 100,000 for Following Reasons.		
		Mental Defects.	Epilepsy and Insanity.	Loathsome or Dangerous Contagious Disease.
1908	782,870	23.7	23.5	371
1909	751,786	24.1	22.2	317
1910	1,041.570	17.4	19.0	300
1911	878,587	18.8	16.6	325
1912	838,172	19.7	16.0	208

Note: Compiled from annual report of Commissioner General of Immigration for fiscal year 1912

It may be questioned whether this number should not show a steady increase, instead of remaining constant. Mention has been made in the Journal at various times of the unduly large proportion of insane and mentally defective in New York State institutions drawn from the foreign population. There has been a widespread movement, especially in New York during the past year, looking toward improvement in the mental examination of arriving aliens. It is unnecesary at this time to dwell upon the great importance of more thorough examination for mental conditions. In his annual report for 1911 the Commissioner of Immigration at New York stated, "At a time when the subject of feeble-mindedness is becoming more and more important in civilized countries, and the nature and bearings of this taint are being studied by scientists, the Government would seem called upon to make far greater efforts than it does to prevent the landing of feeble-minded immigrants." The same is true of insanity.

In his annual report for 1912 the Commis-

sioner of Immigration at New York reiterates the imperative necessity of an increase in the number of medical officers on duty at Ellis Island and of provision by Congress of additional space and facilities for their work. Especially is a corps of trained interpreters needed for the mental examination. The Commissioner points out that the needed improvements at Ellis Island, including larger detention quarters and a new ferry boat, would cost about $600,000, while by reason of the head tax levied on every arriving alien, the income to the Government through immigrants landing at Ellis Island averages about $3,000,000 annually. Of a total immigration into the United States of 838,172 in 1912, 725,040 entered through Ellis Island.

In the fiscal year 1912, 6653 aliens were deported because physically, mentally or morally below the legal standard. Of these, 5427 were excluded at the ports of entry, including 1748 with grave physical defects, 297 with grave mental defects, 2288 with physical or mental defects not so serious, but still affecting ability to earn a living, and 1094 morally defective. Twelve hundred and twenty-six aliens were arrested within the country within the legal three-year limit and deported for the following conditions: 199 physically defective, 620 mentally defective and 407 morally defective. The 5427 defectives rejected in 1912 constituted more than one-third of the total number debarred. Of the 297 mental defectives refused entrance, 10 were idiots, 105 were insane, 44 were imbeciles, 218 were epileptics, and 110 were feeble-minded.

Beginning with the administration of President Wilson, the Bureau of Immigration becomes a part of the new Department of Labor, under Secretary William B. Wilson. There are weighty questions to be solved in the administrative policy of this Bureau, as well as by Congress, in providing adequate appropriations for efficient inspection and in framing legislation which will more effectively exclude physically or mentally unsound aliens. Immigration easily ranks among the leading problems of the day and in no particular is it of greater concern than from the standpoint of the public health. The question might well be raised as to whether the medical inspection of immigrants should not properly be constituted a feature of national quarantine administration, since the function of the two is the same and even now both are operated by the same federal agency, the Public Health Service.

HOUSING REFORM IN GERMANY.

As the family and the home are the basis of civilization, so should the house in which the family makes its home vitally interest the statesman, the humanitarian and the political economist. The housing problem has indeed become momentous, in great civic centres especially; and a recent report in the *New York Evening Post* on housing conditions in Berlin, contains matter pregnant for every community in or out of Germany, in the United States as well as in Europe.

There is a falling birth-rate in Germany. In Berlin the birth-rate has been below the average of France, a country of recent years much objurgated for its "race suicide." And *pari passu* with such falling rate, Germany has a "shockingly high infant mortality." Here are facts at present of unusually deep concern in The Fatherland, and in a way difficult to appreciate by our own people. For a kind of Jingoist infection has seized upon Europe. Every State is needing soldiers, quite as poor mad old Lear needed them; and ever since Napoleon (who held that mother worthiest who could rear most sons to be fed to cannon) the needs of the army have formed the criterion by which such matters are judged in Europe.

All this seems irrelevant until one grasps that in cities generally, inadequate and unsanitary dwellings for the poor have much to do, if not with the falling birth-rate, at least with a high infant mortality; in other words, bad housing tends to lessened families.

In order for better housing therefore, there is a Prussian bill projected, having the object to extend the scope of the building-police authority as to street-widening; the expropriation of needed building sites; provision of open spaces in fair proportion; and the creation of municipal housing departments in all cities and communes with a population over 100,000, which departments will control designs and equipments of dwellings for working people. Inspectors of the Housing Department (akin, no doubt, to the tenement house inspectors in American cities) would see that the demands of the authorities as to space, comfort and sanitation, would be complied with; they would urge the landlord, by precept and advice, to make his property habitable; and should the landlord remain recalcitrant the police would compel him to do his duty.

Local authority, in the event of this bill becoming law, shall decide whether any given room will be used for a living or a sleeping room or kitchen; may forbid the common use of dwelling-rooms by several families; may regulate the number who may live in them (the latter provision being with a special view to the elimination of the lodger of either sex who, for a minimum rent, is entitled to enough floor space to hold a bed). In Berlin, as indeed in all great cities, many thousands have no home other than such "sleep places."

War is also to be waged on the huge "rent-barracks," the typical working-class tenement house of the German cities, with its two, or sometimes three, courts running back from the street. "These places are largely responsible for the curiously strong impression of uniform prosperity which German cities make. The reason is that, in the first section of the houses fronting on the street, people who are either really or relatively prosperous live and pay a fairly high rent. They are the class who are particular about the looks of their windows and cultivate flowers and trailing green in summer on their balconies. The really poor live in the rooms looking on the damp, sunless courts behind and to get an idea of how they live one must penetrate into their unsanitary fastnesses, often a surprising distance from the highly respectable street front."

We may complacently assume this condition of things to be only Continental; yet there are American cities in which the like obtains. There are frame shacks, built cellarless on the ground, without ventilation under the floors, or water in the houses or sewer connections. Many folk living on the main streets are unconscious of or oblivious to the fact that such homes line interior alleys. Here are the "lung blocks" of great cities; for tuberculosis is neither a hereditary nor a family infection, but a house disease.

The subject, as we have intimated, is of world-wide interest wherever humankind congregates in great numbers to make up cities. And herein lies one of the greatest problems with which American municipalities have to deal.

PROGRESS OF DR. FRIEDMANN'S WORK.

Since our latest editorial note on the work of Dr. Friedmann, in the issue of the Journal for March 20 (Vol. clxviii, p. 442), the latter has continued his treatment of tuberculous patients in New York City and elsewhere. On March 29 he inoculated 10 cases of phthisis at the Montefiore Home, New York, in the presence of government physicians. On April 2, Dr. E. S. Harding, of Montreal, chairman of the medical board of the Royal Edward Institute for the Study, Prevention and Cure of Tuberculosis, issued the following statement regarding the patients treated in that city by Dr. Friedmann on March 11:—

"The Friedmann treatment for tuberculosis, while proving itself to exercise no deleterious effect upon its subjects, has as yet produced no results by which its ultimate value can be determined so far as 55 patients treated in Montreal are concerned."

On April 6, Dr. Friedmann treated 19 patients at the Seton Hospital, New York City. On April 9, before a gathering of representative physicians, he treated 69 patients at the Wallum Lake Sanatorium, in Pascoag, R. I.; on April 10, 14 cases at Woonsocket, R. I.; and on April 11, 69 cases at St. Joseph's Hospital, Providence, R. I. On April 12 he addressed the Academy of Science at Washington, D. C., and on April 14 treated patients at the George Washington University Hospital in that city. Alleged attempts to patent and commercialize Dr. Friedmann's vaccine seem due far more to the misguided efforts of American promoters than to any disposition on his own part to make money illegitimately from his method of treatment. It is stated that he has been invited to continue his demonstrations in Texas and in South Carolina.

MEDICAL NOTES.

A Posthumous Award to a Brave Physician.—The patron's medal of the British Royal Geographical Society for 1912 has been awarded to the late Dr. Edward Adrian Wilson, the surgeon of Scott's Antarctic Expedition, who died at the post of duty with his comrades after accomplishing work of great scientific value in exploration and study at the South Pole.

Endowment of Medical Research by Insurance.—It is provided by the British National Insurance Act that the insurance commissioners may retain the amount of one penny for each insured person to be devoted to the investigation of preventable diseases. The total sum thus available for purposes of medical research is about $285,000.

THE SPHYGMOGRAPHIC DETECTION OF FORGERY.—The following method of detecting forgery has recently been suggested by an English physician:—

"The pen in the hand of a writer serves in a modified degree the same end as the sphygmograph, which traces the heart's action, and in a person's handwriting one can see, by projecting the letters greatly magnified on a screen, the scarcely perceptible turns and quivers made in the lines by the action of that person's peculiar pulsation.

"To demonstrate this an experiment was made at the Charing Cross Hospital. A number of persons suffering from heart disease wrote an exercise in their ordinary handwriting. The different manuscripts were then taken and examined microscopically. By throwing them highly magnified on a screen, the jerks or involuntary motions due to the patient's peculiar pulsation were distinctly visible.

"The handwriting of persons in normal health does not, however, always show their pulse beats. What one can say is that when a document purporting to be written by a certain person contains traces of pulse-beats and the normal handwriting of that person does not show them, then clearly the document is a forgery."

APPOINTMENT OF TWO GERMAN PATHOLOGISTS.—It is announced that Dr. Jores, of Köln, has been appointed director of the institute of pathology at the University of Marburg; and Dr. Lubarsch, of Düsseldorf, director of the institute of pathology at the University of Kiel.

SEIZURE OF COCAINE IN SAN FRANCISCO.—Report from San Francisco, Cal., states that on April 8 the local police seized in a city hotel 800 pounds of cocaine, valued at $50,000, smuggled into this country from Mexico for the illicit drug traffic.

HYGIENIC CONQUEST OF JERUSALEM.—A true modern crusade, instituted by American philanthropy, is now being carried out in Palestine. Report from Jerusalem on March 24 states that:

"The soup kitchens that were established by Nathan Straus are now ministering to a thousand Mohammedans, Christians, and Jews every day. The workshops that he started are working full time, giving employment to several hundred, making the souvenirs that are sold to pilgrims, and that were hitherto imported, while the population of the city was sitting in hopeless idleness

"But the most important element in the new life that has been given Jerusalem is the work of the health department, founded by Mr. Straus, under the direction of Dr. Bruenn, and established in a building furnished by the Ottoman Government. Active work was begun last August. The city was divided into thirty districts and was thoroughly studied by the agents of the health department. It was found that every fifth person in Jerusalem had malarial germs in his blood, and that every third person had an enlarged spleen.

"The chief causes of the malaria were found to be the open cisterns, which had become the breeding places of mosquitoes, and the pools that abounded in the city and around about. Immediate steps were taken to have the cisterns covered and the pools filled up. For the first time in centuries there is a real checking of the mosquito plague. The health work is now organized in four divisions:—

"1. General hygiene, especially the stamping out of malaria.

"2. Bacteriology and serology branch of Pasteur Institute, to deal with hydrophobia.

"3. Therapeutic division, to cope with foot and mouth disease.

"4. Eye dispensary, to wage a campaign against the infectious eye disease that causes so much blindness in Palestine."

Such measures, effectively and persistently prosecuted, should result in a genuine hygienic conquest of the Holy Land.

ANTIQUITY OF SURGERY IN EGYPT.—In a recent lecture at London, Dr. F. M. Sandwith, consulting surgeon to the Khedive of Egypt, stated that the first authentic record of surgery in that country was at the time of the fifth dynasty, about 4000 B.C.

"The first surgical implements of which anything was known were splints found in the Nubian Desert. In one place a graveyard was found, and here were remains of bodies with fractured limbs that had been set with bark splints. One was a right thigh bone that had been broken, and was still held in position by a workmanlike splint and bandages. All the knots were true reef knots, and the wrappings showed how the strips of palm-fibre cloth were set just as a good surgeon would set them nowadays, so as to use the full strength of the fabric."

AMALGAMATION OF MEDICAL SCHOOLS.—It is announced that the Baltimore Medical College and the medical department of the University of Maryland have been officially united into a single school; also that the Medical College of Virginia and the University College of Medicine, at Richmond, Va., have been similarly amalgamated.

Red Cross Work in Flooded Districts.—A considerable work of medical relief and sanitation is being performed by the American Red Cross in the Western districts recently devastated by floods.

"About one hundred Red Cross trained nurses were immediately sent to the flooded country and are assisting not only in caring for the sick, but in coöperating with the sanitary inspectors in house-to-house visiting. Major Charles Lynch, U. S. A., of the Red Cross First Aid Department, is giving assistance in this sanitary work to Surgeon General Hall of the National Guard of Ohio. Where necessary, small emergency hospitals were established."

Report from the flooded district states that smallpox is epidemic in many small towns along the course of the Ohio River in Illinois, Indiana, Ohio and Kentucky.

Wisconsin Pure Syrup Law Invalid.—Report from Washington, D. C., states that on April 7 the federal supreme court declared the pure syrup law of Wisconsin invalid because the latter conflicted with the national pure food law.

BOSTON AND NEW ENGLAND.

Maine Insane Hospitals.—The recently published combined annual reports of the trustees, resident officers, and visiting committees of the Maine Insane Hospital at Augusta, and of the Eastern Maine Insane Hospital at Bangor, record the work of those institutions for the year ended Nov. 30, 1912. During that period 1184 patients were treated at the former and 750 at the latter. Five nurses were graduated from the former hospital training-school and eleven from the latter. A new home for nurses is urgently needed at the Augusta hospital; and at the Bangor hospital, additional land for a dairy farm.

Nomination of Dr. Rosenau.—It is announced that Governor Foss has nominated Dr. Milton J. Rosenau, of Boston, professor of preventive medicine and hygiene in the Harvard Medical School, to succeed the late Dr. Julian A. Mead as a member of the Massachusetts State Board of Health.

Brookline Free Hospital for Women.—On Wednesday of last week, April 9, a costume ball was given at the Copley-Plaza Hotel, Boston, for the benefit of the Brookline (Mass.) Free Hospital for Women. A sufficient sum was made to enable the hospital to remain open this coming summer.

Monson State Hospital.—The recently published annual report of the trustees of the Monson (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period the total number of patients under treatment was 1146, and eight nurses were graduated from the training school. Considerable was done in the way of additions, reconstructions, and other permanent improvements to the hospital buildings, and extensive field studies were made of epileptics, deviates and delinquents, particularly from the point of view of heredity. The work system of treatment has been much employed, with ever increasing success.

Northampton State Hospital.—The recently published fifty-seventh annual report of the trustees of the Northampton (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period the total number of patients under treatment was 1323, of whom 699 were men and 624 women. The hospital is overcrowded, and an appropriation of $41,000 is asked for the construction of a new dormitory. Appropriation is also asked for the purchase of two adjacent tracts of land for further enlargement.

Measles in Reading.—Report from Reading, Mass., on April 6 states that measles is at present epidemic in that town, where 40 cases have recently occurred among the pupils of a single school.

Gift of a Tuberculosis Hospital.—It is announced that Mrs. James Jordan, of Boston, has given a tract of 800 acres, with house, near Moncton, N. B., to the government of New Brunswick to be used as a hospital for incipient tuberculates.

"The original mansion has been rearranged for use of the nurses, superintendent, and also for kitchen, dining, recreation and reading rooms for the patients. Three pavilions are being completed in the grounds for the latter. Each will accommodate ten patients. Each has wide verandas and the doors of the bedrooms all open out on the verandas, so that except in very rough weather the beds are wheeled out, enabling the patients to sleep in the open air. Each pavilion is provided with a large bath-

room, a room for clothing, books, medicines and also a room for severe cases."

MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.—The seventy-third annual meeting and dinner of the Massachusetts Homeopathic Medical Society was held in Boston on Wednesday of last week, April 9. The annual address was given by the retiring president, Dr. George R. Southwick. The following officers were elected for the ensuing year:—

"Dr. Plumb Brown, of Springfield, president; Dr. John H. Paine, of Boston, first vice president; Dr. Mary A. Leavitt, of Boston, second vice-president; Dr. E. S. Calderwood, of Boston, recording secretary; Dr. B. T. Loring, of Boston, corresponding secretary; Dr. T. M. Strong, Boston, treasurer; Dr. George R. Southwick, of Boston, chairman of the board of censors."

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 8, 1913: Diphtheria, 46; scarlatina, 27; typhoid fever, 6; measles, 25; smallpox, 0; tuberculosis, 61, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 14.39.

NEW YORK.

THE OHIO FLOODS.—Up to the evening of April 4 the New York contributions for the relief of the flood sufferers in Ohio and other States amounted to $631,050, and of this, $494,695 was given directly to the Red Cross fund. The Russell Sage Foundation has been making a study of the methods of relief adopted after the San Francisco earthquake and fire, and, by a remarkable coincidence, a book setting forth the results of these researches was just going to press when the news of the recent floods came. For the guidance and assistance of those engaged in the work of relief the Foundation has had advance sheets of portions of the book stuck off, and in these the necessary operations are treated of under six heads: organization and emergency periods, rehabilitation, business rehabilitation, housing rehabilitation, after-care, the aged and infirm.

PELLAGRA COMMISSION.—During the past week the Pellagra Commission, under the auspices of the New York Post-Graduate Hospital, the expense of which is paid by Col. R. M. Thompson, of New York, and J. M. MacFadden, of Philadelphia, again went to Spartanburg, S. C., to pursue its investigations in the spring and summer. As before, the head of the Commission is Capt. J. F. Siler of the U. S. A. Medical Corps.

COLUMBUS HOSPITAL.—At a dinner on April 1, at which Dr. Ramon Guiteras presided, a campaign was started to raise $200,000 for new buildings for the Columbus Hospital, which has outgrown the limited accommodations of its present quarters.

DEATHS FROM STREET ACCIDENTS.—During the first quarter of 1913 there has been a marked increase in deaths from street accidents in the city, notably from automobiles, over the corresponding quarters of the past two years. The figures given by the National Highways Protective Society are as follows:

	1913	1912	1911
Automobiles	51	39	19
Trolley cars	36	31	16
Wagons	19	21	19

DEPARTMENT OF SOCIAL WELFARE.—Mrs. A. A. Anderson, a daughter of the late Jeremiah Milbank, who with her brothers has in the last ten years contributed nearly $5,000,000 to benevolent objects, has now made a gift of $650,000 to the New York Association for Improving the Condition of the Poor for a department of social welfare. In her letter offering this fund she expresses the wish that the proposed department should concern itself with a program based upon preventive and constructive measures which should include those activities calculated to prevent sickness and thus diminish poverty, such, for example, as the promotion of cleanliness and sanitation, and aid in securing a proper food supply. She then suggests at least three sub-departments or committees: one dealing with matters pertaining to public health and hygiene, one with those pertaining to the welfare of school children, and one with those pertaining to food supply. A tentative program in accordance with these suggestions has been outlined by the association, and it is stated that a committee on public health and hygiene will, among other things, continue the public bath work which the society started in 1891. It will have supervision over the Milbank Memorial Baths and will coöperate with the city in increasing and popularizing public bathing facilities.

THE COMMUNION CHALICE.—Dr. E. L. Trudeau has published in a recent number of *The Churchman* a suggestive communication in regard to the administration of the chalice in the Communion service. The question of any possible danger of conveying infection by this means has, he says, long been of the deepest interest at Saranac Lake, in view of the number of invalids there. Some three years ago, with the approval of the bishop of the diocese, the simple plan of dipping the wafer in the wine and placing both at one time between the lips of the recipient was adopted. No opposition has been elicited, the well and the sick have communed together with the utmost freedom, and the number of communicants has been greatly increased since the change was made. On purely bacteriological grounds, he goes on to say, the objection to the direct contact of the lips to the chalice has, so far as the transmission of tuberculosis is concerned, perhaps been exaggerated, and, after some discussion of this point, concludes as follows: "Although there may be widely differing views held among bacteriologists and physicians as to the possibility of transmitting diseases by the usual method of the administration of the chalice, there is no doubt at all that many communicants are deterred by the fear of contagion, and that the method in use here entirely does away with this objection. The Church must decide whether of her own accord to initiate this slight change, or whether to wait the possibility of being required to do so by health authorities."

Current Literature.

MEDICAL RECORD.

MARCH 29, 1913.

1. BEARD, J. *On the Occurrence of Dextrorotatory Albumins in Organic Nature.*
2. MAYO, T. J. *The Action and Administration of Crotalin in Pulmonary Consumption and in Epilepsy.*
3. WILLIAMS, E. H., AND BROWN, J. S. *The Menace of the "Recovered" Insane.*
4. *BOEHME, G. F., JR. *The Differential Diagnosis Between Pneumonia and Appendicitis.*
5. BOLDT, H. J. *A Brief Comparison Between Hospital Service in Germany and That in the United States, with a Reference to the Requirements for Medical Practice.*
6. SILL, E. M. *The Treatment of Erysipelas in Infants by Means of Vaccines.*

4. Boehme discusses the differential diagnosis between pneumonia and appendicitis which, he points out, are more often confounded than one would suppose. He calls attention especially to the abdominal symptoms of pneumonia——pain, tenderness, rigidity, tympanites, nausea and vomiting. The most important aid to correct diagnosis in these cases is the character of the abdominal tenderness, which in pneumonia is more general and more superficial than in appendicitis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MARCH 29, 1913.

1. MACKEE, G. M., AND REMER, J. *Massive Dose X-ray Treatment of Cutaneous Epithelioma.*
2. BOLDNAN, C. F. *Hospital Morbidity Statistics.*
3. CUMSTON, C. G. *Suprapubic Cystostomy.*
4. TOUSEY, S. *An Improved X-ray Generator.*
5. *AIKMAN, J. *Extract of the Suprarenal Glands.*
6. HYMAN, A., AND SANDERS, A. S. *Chronic Seminal Vesiculitis.*
7. KNAPP, M. I. *Newer Teachings of Diseases of Gastro-intestinal Canal.*
8. DRUFORD, G., AND HIRSHBERG, L. K. *Dreaming and Dreams.*
9. WERTHEIMER, H. G. *Hyperidrosis; Etiology and Treatment.*
10. LAVANDERA, M. *A Plea for More Expert Anesthetists.*
11. LUBMAN, M. *The Prevention of Middle Ear Diseases.*
12. GILBRIDGE, J. J. *Ten Cases of Goitre.*
13. GLASGOW, L. E. *Salvarsan in Asthma.*
14. KNOOP, F. *Modern Problems of Nutrition.*

5. Aikman writes an interesting paper on the therapeutic uses of suprarenal extract. He says that constitutional effects are obtained only by hypodermic injections or intravenous infusions. The hemostatic effect is obtained only by local applications. Given by the mouth, suprarenal extract has little or no action aside from the local effects. It should not be used in the treatment of pulmonary or cerebral hemorrhages. Failures in the treatment of bronchial asthma are generally due to faulty diagnosis or improper administration of the drug. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 5, 1913.

1. GRANT, W. W. *Ligneous Phlegmon of the Abdominal Wall.*
2. FIGUEROA, S. *A New Method of Shortening the Round Ligaments.*
3. *ALBEE, F. H. *An Experimental Study of Bone Growth and the Spinal Bone Transplant.*
4. LYON, E. P. *The Problem of Teaching General Medicine.*
5. BURR, C. W. *The Teaching of Psychiatry.*
6. DERCUM, F. X. *The Teaching of Insanity.*
7. GOULD, G. M. *Saving the Backward School Child.*
8. HIRSCHFELDER, J. O. *The Treatment of Gonorrheal and Other Infections with Digestive Bacterial Extracts.*
9. NEUHOF, S. *A Case of Congenital Familial Dextrocardia with Electrocardiographic Curves.*
10. RAETZ, W. *One Hundred Cases of Acute Arthritis Among the Negro Laborers on the Panama Canal.*
11. WESSON, M. B. *Rabies. A Pathognomonic Sign Generally Overlooked.*
12. THOMAS, S. B. A. *The Preparation and Employment, in a Series of Cases, of a Potent Polyvalent Antistaphylococcic Serum.*
13. UNDERHILL, A. J. *Intermittent Pyuria Due to Infection of the Prostatic Utricle.*

3. Albee expresses the following opinions in regard to the growth of bone grafts. Many liberties may be

taken with the bone graft without interfering with its success. It has certain bacteria-resisting properties. Grafts may be kept in salt solution or on ice or several days before use. It seems probable that the amount of Haversian blood-supply is, in a very large degree, if not wholly, responsible in determining whether bone graft lives as such or acts as an osteoconduction scaffold. The transplant apparently acts always as a stimulant to osteogenesis on the part of the bone into which it is implanted. It seems largely a question of definition of what the periosteum really is, and what it includes, as to whether it is to be actively osteogenetic or not. If by chance the cleavage is deep, as when the periosteum is removed with a sharp elevator and the bone scraped, the periosteum is very sure to be actively osteogenetic. On the other hand, if the periosteum is stripped off or removed by a blunt instrument, the cleavage is not likely to be deep enough to include the osteogenetic layer of cells on the periphery of the compact bone. In that instance the periosteum would constitute a connective tissue limiting membrane only and slight or no osteogenesis would occur. [E. H. R.]

SURGERY, GYNECOLOGY, AND OBSTETRICS.

MARCH, 1913.

1. MAYO, W. J. *Surgery of the Spleen.*
2. WILSON, L. B. *The Pathology of Splenomegaly; a Study of the Operative and Autopsy Material from the Mayo Clinic.*
3. *WEIBEL, W. *The Extended Abdominal Radical Operation for Cancer of the Uterus.*
4. *CLARK, J. G. *The Radical Abdominal Operation for Cancer of the Uterus.*
5. CULLEN, T. S. *The Radical Operation for Cancer of the Uterus.*
6. *WERDER, X. O. *The Cautery in the Radical Treatment of Cancer of the Cervix.*
7. DICKINSON, R. L. *Discussion of Paper on "Cancer of the Cervix."*
8. GELLHORN, G. *The Extended Vaginal Operation for Cancer of the Cervix Uteri.*
9. TAYLOR, H. C. *Discussion of Papers on "Cancer of the Uterus."*
10. *NEEL, J. C. *Results After the Wertheim Operation for Carcinoma of the Cervix of the Uterus.*
11. *ROBINSON, S. *Intratracheal Ether Anesthesia.*
12. JAMES, C. S., AND SHUMAN, J. W. *Seminal Calculi Simulating Nephrolithiasis.*
13. SAMPSON, J. A. *Results of the Radical Abdominal Operation for Cancer of the Uterine Cervix.*
14. KELLY, H. A., AND LEWIS, R. M. *Skiagraphic Demonstration of Vesical Tumors.*
15. CUBBINS, W. R., AND MARVEL, W. J. *General Plastic Peritonitis.*
16. MILLER, J. R. *The Relation Between Sarcoma and Myoma of the Uterus and Its Bearing on X-ray Therapy of Uterine Myomata.*
17. MCKENNA, C. H. *A Report on Two Cases of Cervical Rib and an Operative Measure to Prevent Recurrence of Symptoms.*
18. TUREK, R. C. *Lateral Intestinal Anastomosis, a Modification of the Ferguson-Grant Method.*
19. GOOD, F. L. *A New Obstetrical Rubber Dilating Bag.*
20. HIRST, B. C. *Rupture of the Uterus.*
21. KOLISCHER, G. *The After-Treatment of Suprapubic Prostatectomy.*
22. PORTER, J. L. *The Treatment of Tuberculous Joints.*

3. Weibel, studying 863 cases of cancer of the cervix, finds 53% of permanent cures of all cases surviving operation. By permanent cure is meant no recurrence after five years. In the last 175 operations the mortality was reduced to 9%.

4. Clark believes that the radical operation in spite of the high mortality has given the highest per cent. of cures of any operation thus far employed for this condition. The abandonment of the extensive glandular dissection is justified because it adds greatly to the mortality and does not sufficiently raise the percentage of permanent cures.

6. Werder is strongly in favor of extensive igni-extirpation of the vaginal vault and the parametrium by the vaginal route in cancer of the cervix. He warns that we should look out for the late recurrence after 6-8 years in all operative procedures.

10. Neel, analyzing cases at Johns Hopkins Hospital, finds that the primary mortality has been decreased from 28.5% for the first 7 years to 11.7% for the last 5 years. He believes that exploratory laparotomy is often necessary to determine the operability of a case before the extended operation is undertaken.

11. Robinson concludes that intratracheal insufflation anesthesia is a safe method. It is the method of choice in operations about the head, neck and thorax, and should reduce the mortality in these operations. Operative shock is lessened, and post-operative recovery is less exhausting. [E. H. R.]

THE LANCET.

MARCH 8, 1913.

1. *ADAMS, J. E. *Hunterian Lecture on Peritoneal Adhesions.*
2. *BERRY, J. *Lettsomian Lecture on the Surgery of the Thyroid Gland, with Special Reference to Exophthalmic Goitre. Lecture II.*
3. *MÜLLER, F. *Principles of Percussion and Auscultation.*
4. WARD, G. R. *The Blood in Cancer with Bone Metastases.*
5. COBE, D. E. *Fatal Hematemesis in a Case of Hepatic Syphilis.*
6. HALL, G., AND ANGUS, H. B. *Case of Subcortical Cerebral Tumor, Tuberculous in Nature, Removed by Operation; Recovery.*
7. *BARDSWELL, N. D. *The Treatment of Pulmonary Tuberculosis.*

1. Adams in the Hunterian Lecture, presents an interesting experimental study on peritoneal adhesions. He considers the nature of such adhesions, infective and non-infective, as produced by sterile sponges, etc. He shows that sterile rubber drainage tubes are so soon covered by adhesions as to lower their value except in abscess centers. The leaving of blood in the abdominal cavity does not seem to particularly excite the formation of adhesions. He describes various experiments by which adhesions were produced. He discusses the valuable rôle played by the omentum in localizing inflammatory processes by forming adhesions and describes the movements of the omentum. He goes over the various methods of attempting to prevent and cure adhesions by the use of lubricants, omental grafts, etc.

2. In the second Lettsomian Lecture Berry discusses to what extent operation is justifiable in Graves' disease, first considering the results of medical treatment, which he thinks does very little to influence the course of the disease. In his own cases the operative mortality was very small. He discusses the selection of cases for operation, the advantages of operation, which he considers great, the question of anesthesia and the relative advantages and indications for the various operations, ligation of the arteries, partial excision, and the dangers of total excision. Finally, he states that in his opinion treatment should be carried out jointly by both physician and surgeon.

3. Müller discusses the underlying physical and acoustic principles of auscultation and percussion. He urges that these two methods be placed on a more solid scientific basis.

7. Bardswell discusses the immediate and ultimate results of treatment of pulmonary tuberculosis at the King Edward VII Sanatorium. For statistical purposes all cases should be divided into two classes, those with and those without a positive sputum. He emphasizes the great prognostic importance of the disappearance of tubercle bacilli from the sputum. The article is of interest and value to those especially interested in the subject. [J. B. H.]

March 15, 1913.

1. *Berry, J. *Lettsomian Lecture on the Surgery of the Thyroid Gland with Special Reference to Exophthalmic Goitre. Lecture III.*
2. *White, W. H. *Alimentary Toxemia.*
3. Murray, R. W. *The Etiology of Cysts Connected with Hernia Sacs.*
4. Bradburne, A. A. *Spastic Cyclophoria.*
5. Reynolds, J., and Reynolds, R. J. *On the Treatment of Carbuncles, Boils, Staphylococcic Infections, and Certain Streptococcic Infections by the Internal Administration of Large Doses of Dilute Sulphuric Acid.*
6. Bardswell, N. D. *The Treatment of Pulmonary Tuberculosis. II.*
7. Wood-Jones, F. *Some Anatomical Considerations of the Disposition of the Sciatic Nerve and Femoral Artery; with Suggestions as to Their Clinical Significance.*
8. Aikman, J. *An Unusual Abdominal Case.*
9. Fitzwilliams, D. C. L., and Vincent, W. H. *A Case of Gangrene of the Leg in an Infant Eleven Days Old; Amputation; Recovery.*

1. In the third Lettsomian Lecture, Berry discusses and analyzes his own series of 400 operations for the removal of goitre. Parenchymatous goitres, he believes should rarely be treated by operation but by medical means, such as "the administration of iodine in some form or other, or of arsenic or thyroid extract." He tabulates his reasons for operating in his cases, among which come chiefly dyspnea, 209, and discomfort, 57. He goes on to consider adenomata and cysts of the thyroid, intrathoracic goitres and malignant disease of the thyroid.

2. Cf. *British Medical Journal*, March 15, 1913. [J. B. H.]

March 22, 1913.

1. *Hall, F. D. H. *The Lumleian Lectures on Intrathoracic Aneurysm. Lecture I.*
2. *Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture I.*
3. Hertz, A. F. *Bastede's Sign: a New Symptom of Chronic Appendicitis.*
4. Turner, D. F. D. *Cases Treated by Radium in the Royal Infirmary.*
5. Wallace, C. F. *Hyperextension and "Back-fire" Injuries of the Wrist.*
6. MacNab, A. *Ionic Medication in Herpes Zoster.*
7. Smith, H. L. *The Nature of Tea Infusions.*

1. Hall discusses intrathoracic aneurysm as to etiology, situations and symptoms. These he takes up in detail under the following headings: (1) pain, (2) respiratory, (3) laryngeal, (4) circulatory, (5) dysphagia, (6) paraplegia and hemiplegia, and (7) general symptoms. He discusses physical signs at some length.

2. Bell, in the first of the Arris and Gale Lectures, discusses the functions of the ovary, the effect of the removal upon the genital functions, upon general metabolism, upon the thyroid and pineal glands and upon the suprarenals. He then considers certain clinical observations of the effects produced upon the thyroid and upon the pituitary by ovarian insufficiency. [J. B. H.]

British Medical Journal.

March 8, 1913.

1. *Price, F. W. *An Address on Recent Advances in the Diagnosis, Prognosis and Treatment of Heart Disease. The Polygraph.*
2. *Lewis, T. *An Address on Certain Physical Signs of Myocardial Involvement.*
3. Thorne, W. B. *Manifestations of a Healthy Heart.*
4. Naish, A. E. *The Ventricular Rate in Complete Heart-block.*
5. Samways, D. W. *The Auricle in Mitral Stenosis.*
6. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture II.*

1. Price, in a somewhat complex and detailed paper, discusses the modern methods of diagnosing and investigating various cardiac conditions by means of heart tracings and the polygraph, giving both auricular and ventricular movements. He dwells particularly upon digitalis and its uses, why it is so effective in one case and apparently valueless in another. Under treatment he urges prolonged rest, both physical and mental. In cases with widespread degeneration of the heart muscle and in cases where there is pyrexia digitalis will do no good. In fibrillation of the auricles it is of the greatest value. He advises pushing the drug until toxic symptoms are in evidence.

2. Lewis, in an article covering much of the ground of the previous one, considers acute and subacute heart block and other evidences of myocardial degeneration, temporary and permanent.

6. In the second Goulstonian Lecture Jex-Blake continues his discussion of death by electric currents. He dwells particularly upon the influence of fright, general anesthesia and sleep upon such currents. [J. B. H.]

March 15, 1913.

Alimentary Toxemia.

1. *White, W. H. *Introduction.*
2. *Andrews, F. W. *Bacteriology.*
3. *Saundby, R. *Medical Point of View.*
4. Lane, W. A. *Surgical Point of View.*
5. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture III.*
6. *Bonney, V. *The Necessity of Recognizing Midwifery as a Branch of Surgery.*

1. White briefly discusses the subject of alimentary toxemia in a general way, describing the previous work done on the subject by Herter and others, the symptoms and their relation to allied conditions.

2. Andrews, taking up the subject from the bacteriological point of view describes the conditions for bacterial growth offered by the alimentary canal, the biological character of the normal flora of the canal, the number and nature of the bacteria at different levels, their effect upon the healthy body, and the influence of pathological conditions upon them and the part they play in alimentary toxemia. In a large group of cases the poisoning is by foreign proteins with which bacteria have nothing to do. There is little evidence at present that true toxins derived from the ordinary fauna of the gut, soluble or intracellular, play much part in alimentary toxemia.

3. Saundby discusses the symptoms of alimentary toxemia and comes to the conclusion that infrequent or incomplete evacuation of the colon is not in itself a cause of disease, but that such symptoms which may arise under this condition, are due to a breaking down of the normal protective mechanism. Evidence does not justify the entire exclusion of proteid food from

the diet on the theory that from animal proteins all such toxemia arises. Treatment should be based on eliminating toxins and preventing their further formation. In case of extensive disease of the wall of the colon the exclusion or removal of this organ is a justifiable procedure after reasonable trial has been given to medical methods.

5. In the third Goulstonian Lecture Jex-Blake considers death by lightning. In the United States in the year 1900 there were from 700 to 800 such deaths. He discusses the nature of lightning, intensity of the current, etc., classifies the various kinds of flashes and mentions the various theories of death in such cases. He considers at length the post-mortem changes and quotes several illustrative cases.

6. Bonney makes a strong plea to consider obstetrics as a branch of surgery, instead of an appanage to medicine. (Such a paper should be quite unnecessary; unfortunately this is not the case.—J. B. H.)

MARCH 22, 1913.

1. RANKIN, G. *A Lecture on Glycosuria.*
2. STOCKMAN, R. *The Action of Salicylic Acid and Clinically Allied Bodies in Rheumatic Fever.*
3. *JEX-BLAKE, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture III.*
4. *WATSON, C. *Remarks on the Food Requirements of Children.*
5. TURNER, D. *Cases Treated by Radium in the Royal Infirmary, Edinburgh, During 1912.*

3. Jex-Blake, in the third Goulstonian Lecture, reviews the causes of death by lightning, failure of the heart, failure of respiration, and both together. Unless sudden death takes place the percentage of recoveries is large. He gives some interesting and sensible remarks upon prevention. The oak tree, for instance, is forty or fifty times more liable to be struck than the beech; a forest is safer than an isolated tree; it is safer to lie or sit than to stand up; umbrellas should not be kept up; it is always wise to have a dog along as animals are more apt to be struck than humans. (This is rough on the dog.—J. B. H.) Treatment consists chiefly of artificial respiration. There is a very lengthy bibliography.

4. Watson has been making investigations: (1) to ascertain by chemical analysis the amount of food consumed daily by apparently healthy children about five years old, in good social circumstances, and (2) to devise nutritious one-course meals at small cost suitable for a large number of children, 2000 or more, fed by the school authorities. The paper does not lend itself to review but is an interesting and valuable contribution to the subject. [J. B. H.]

Miscellany.

DR. HERBERT B. HOWARD'S RETIREMENT FROM BOARD OF INSANITY.

THE State Board of Insanity, at its meeting April 4th, adopted the following resolutions on the retirement of Dr. Herbert B. Howard, chairman, as a member of the Board:—

Resolved, That in the retirement of Dr. Herbert B. Howard as a member of the State Board of Insanity, the Board loses a tried and competent member and the State a public servant of integrity and unusual experience.

Dr. Howard had a career which eminently fitted him for the work and responsibilities of this Board through long and varied association with State and private institutions. He became assistant physician of the State Infirmary in 1884, and its superintendent in 1891. In 1897 he resigned this position to become superintendent of the Massachusetts General Hospital. In 1908, he resigned from the Massachusetts General Hospital to assume the superintendency of the Peter Bent Brigham Hospital, a position which he now holds. His connection with the State Board of Insanity dated from its establishment in 1898. In 1902 he resigned to become trustee and chairman of the Gardner State Colony; and on his resignation in 1907, he was reappointed a member of the State Board of Insanity, of which he became chairman in 1908, a position which he filled with dignity and efficiency until March, 1913.

His colleagues on the State Board of Insanity hereby place on record their deep appreciation of his work as a member of the Board and their recognition of his sterling qualities as a man.

Correspondence.

LETTER FROM FRANCE.

THE LATEST URIC ACID SOLVENTS.

(From Our Special Correspondent.)

PARIS, March 7, 1913.

The excellent saying that there are some popular beliefs that have to be killed, as they will never die, is perhaps nowhere truer than in the uric acid question. So far as I can observe, the belief of the substance as a pathogenic agent is just as firm today as it was twenty years ago, in spite of all that has been written about it by the men who have taken as their special field the department of nutrition disorders. Though on reflexion this is maybe not surprising, for what comparison can there be between the dictum of learned men, and the advertisement column of the daily paper? Naturally none; the odds are too great. And I fancy that the real enemy, the foe that is dying so hard, is the manufacturer of the patent uric acid solvent, whose wares, at least over here, are heralded in every sheet in flamboyant characters, and, it must be confessed, with clever and humorous illustrations.

The latest offender, the preparation that has driven me to my pen again, is,—. No I will not help it along even by the feeble means at my command,—this exploiting of public credulity is really too lamentable. Suffice it to say that following on its two or three score of predecessors there is now on the market here a remedy that we will call X that is in the hands of some pretty skilful promoters, according to French ideas. There is a saying in France that you can make *anything* sell provided you have courage enough to dump load after load of money into the bottomless pit of advertising, without expecting to get any return whatever for a more or less extended period: the courage consists in going steadily ahead until the returns do begin to show up. Now the point is that this is a remarkably canny folk, not given to letting money get very far out of sight, for fear it may not be able to find its way home again. The consequence is that their ideas on advertising are what we should

call infantile. Since newspaper advertising costs a good deal of money, they, as a general thing, do not have recourse to it; thus their largest general daily papers consist in only six or, at the most, eight pages, mostly reading matter. The popular means of bringing a pharmaceutical product to the public's notice is either to send small leaflets by post to the persons they think the question may interest, or else to hire some needy-looking individual who has made a failure in every other path of life to go around and visit the same parties and expatiate on the virtues of the preparation. The result of these two practices is, that the leaflet passes into the basket unopened, while after the agent has departed you sit down to make a careful note of his wares so that you may be sure never, never to use them under any circumstances whatever.

This being the general practice here the methods followed by the promoters of the product X are so entirely different that I have wondered whether the owners are not in reality Americans. I am told that advertising in French dailies is very expensive, as they are not exactly charity organizations; they have in addition one little game of highwaymanship that is really most attractive. You advertise your product freely in a couple of the leading papers, and only moderately, or not at all, in papers of lesser ranks. All of a sudden you are surprised by a strong adverse current of opinion blowing from the columns of the latter, and on inquiring as to the cause you are told that you are deliberately being held up, in order to force you to advertize in their sheet also! But the X-men have made no such mistake. Anything that you pick up has the X-ad. in it somewhere; it is flashed on the drop-curtains of the theatres between the acts as you sit there helpless; and in one of the most important dailies clever illustrations have appeared, half of the outside page, if you please, representing a male nurse with a powerful scrubbing-brush hard at work cleaning out a split-open kidney, or a disordered liver,—so that even the densest intellect can be in no doubt as to the action of the preparation. How there can possibly be enough people in circulation burning to flush out their excessive uric acid, to warrant such wholesale advertising as this, passes my comprehension, even granting that uric acid can be in excess and needs washing out! But that is the affair of the X-company, and not mine, fortunately.

The imperturbability of the man in the street, and perhaps even more of the wife of his bosom, in this uric acid question is dumbfounding. He has, of course, ideas on most medical matters, but on many of them he is prepared to admit that he does not possess the whole truth, and that there may be grounds for doubt or discussion. But not so with uric acid. This substance he knows all about, and he knows just what it does: he knows when his system is thoroughly saturated; his chemist will measure his daily output for him in hundredths or thousandths of a gram, if he wishes; and he is just as thoroughly convinced of the accuracy of his little mental equation: uric acid= more or less all the symptoms that custom has led us to group together under the heading of gout-rheumatism, or arthritism, to use the term adopted over here, as he is that the sun will rise tomorrow. To attempt to argue on the subject is useless; even with the most intelligent. It is the breaking-point, in medical matters. They will admit skepticism in pretty much anything, but not on the uric acid question; so that it is really better to bow before such fixity of purpose, and hope for better days.

I had been meditating on the meteoric career of this X-product a good deal of late, when the other day a woman came back from Lausanne with what I take to be the very latest touch in the uric acid solvent line, and this time I think the other rivals will really have to sit up, as the new notion is going to be very attractive to this gullible flock of clients and will certainly push all the —al class of drugs very hard.—in fact would unquestionably run them clear off the field were it not for the one item of expense,—for the newcomer is a very costly affair.

I have on a former occasion referred to the medical community that has been gradually worked up at Lausanne, where a certain band of impenitent fakirs have been treating the whole of Europe of late years for gastro-intestinal disorders with a combination of hot alkaline solution, messy paps, and blueberry jam. Lausanne has become a regular pool of Siloam; certain doctors have entire hotels given up to their patients only; and the place has in a way grown to be a species of little Mecca, outside of whose precincts salvation is not to be had. Thus soda and macaroni will not work in London, or New York; they have to be administered *in situ* by the master hand. Well, these fellows have surpassed themselves this time. I once asked an elderly medical man who had retired at the close of a long and prosperous career, to what he attributed his success in the main, as he did not appear to me to be gifted beyond many another brother practitioner. "Well, doctor," said he, with a penetrating look, "I think I always had a fertile mind," and he pronounced it with a good long i that was very effective,—meaning that whenever one drug demonstrated its want of efficacy he was never at a moment's loss for another one to take its place. Now these Lausanne brethren are unquestionably endowed with minds of a similar order. For what they advise as a uric acid solvent you would never guess from now until Doomsday. Radium! but radium given in the following manner,—which you will at once see has its practical side.

They have an apparatus fitted with a reservoir for water, a radium cell, and a measuring contrivance. So many c.c. of water remain in the vicinity of the cell for so long, and are then administered to the patient, who comes to the hospital every day, begins at a low quantity, rises to a maximum by gradual stages, and then returns again in a similar way to the starting-point, the entire cycle covering a period of about 24 days. This radiated water is absorbed with the circulation, dissolves the lumps of uric acid which are naturally being swept along the vessels, very much like pebbles in a mountain stream, and, in short, renders inestimable services to the patient,—not to speak of the doctor's bankbook.

However, in my patient's case the result was not according to schedule. They have, by the way, now introduced a new dodge into the question. In times gone by patients were quite satisfied to know the number of centigrams of uric acid eliminated per liter of urine. It meant nothing at all, scientifically; but it was a definite mathematical figure, and we all know the fascination such details have for the average patient. But now the question has advanced, and been put on a firmer foundation, for the patients are told how many milligrams of uric acid their blood contains per 100 cc.! A puncture of the finger is made, which hurts like the dickens, as a certain volume of blood is requisite for this analysis, and the laboratory does the estimating. Now in my case something went wrong. The patient says the water was radiated each day by a different attendant, each one of whom submitted it to a different duration of radiation, and the results were approximately as follows,—I have purposely changed the figures a little. Before treatment, uric acid of the urine, per diem 0.32; of the blood, per 100 cc., seven milligr. After two weeks' treatment, 0.35, and eleven. And on return to Paris, 0.48, and fourteen! However, there is simply no discouraging this class of patient, and he has found a man here who says that it is not necessary for the victim to come to the doctor to draw the *elixir vitae* fresh from the tap, but that he will prepare it for him in his laboratory and deliver it each day at his house, and the treatment is to continue! [This idea may possibly commend itself to some enterprising mind at home in search of the new,—although in my inmost heart I trust that the whole affair will in America meet with the estimation it so richly deserves.]

"S."

A POST-MORTEM PORTRAIT OF CHARLES THE FIRST.

Salem, April 4, 1913.

Mr. Editor: In Guey and Ferrier's "Forensic Medicine," (London, 1875), there is a plate of the unfortunate Charles I, taken 165 years after his execution.

Hardly a person could fail to recognize the likeness of the unfortunate monarch.

As you say,* he was a better man than either his father or his son!

Very truly yours,

DAVID COGGIN, M.D.

* See JOURNAL of April 3, 1913, (vol. clxviii, p. 516).

CHANGES IN THE NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending April 5, 1913.

BIELLO, J. A., passed assistant surgeon. Detached from NAV. HOSP., Mare Island, Cal., and ordered to U. S. *Delaware*.

POST, D. C., assistant surgeon. Detached from Navy Yard, New York, N. Y., and ordered to U. S. S. *Glacier*.

DAVIDSON, A. B., assistant surgeon. Detached from U. S. S. *Glacier*, and ordered home to await orders.

ROBERTSON, G. E., assistant surgeon. Detached from U. S. S. *Petrel*, and ordered to Marine Expeditionary Force.

DRAGOO, C. H., assistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Petrel*.

FINDEISEN, W. E., assistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Wheeling*.

WOOD, C. C., asistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Nashville*.

RIDDICK W. J., assistant surgeon. Detached from U. S. S. *Wheeling*, and ordered to Marine Expeditionary Force.

JENKINS, H. E., assistant surgeon. Detached from U. S. S. *Nashville*, and ordered to Marine Expeditionary Force.

FRENCH, G. R. W., assistant surgeon. Detached from U. S. S. *Panther*, and ordered home to await orders.

CHARLTON, C. F., assistant surgeon. Detached from NAV. HOSP., New York, N. Y., and ordered to U. S. S. *Panther*.

CONNOR, W. H., assistant surgeon. Detached from NAV. HOSP., Newport, R. I., and ordered to Washington, D. C., examination for promotion.

SOCIETY NOTICES.

HARVEY SOCIETY.—The annual meeting of the Harvey Society will be held at the College of Physicians and Surgeons, 437 West 59th Street, New York, on Friday evening, April 18, at 8.30 p. m.

HAVEN EMERSON, *Secretary*.
120 East 62d Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-seventh meeting of the New England Pediatric Society will be held at the Boston Medical Library, at 8.15 p. m., on Friday, April 25, 1913.

The following papers will be read:

1. One Hundred and Seventeen Cases of Infantile Diarrhea Treated by Intestinal Implantation of the Bacillus Lactis Bulgaricus at The Babies' Hospital of New York. Ralph Oakley Clock, M.D., New York.

2. Congenital Stenosis of the Pylorus with X-ray Plates. Charles G. Mixter, M.D., Boston.

3. Tonsils and Adenoids in Children. Algernon Coolidge, M.D., Boston, and F. E. Garland, M.D., Boston.

Light refreshments will be served after the meeting.

JAMES S. STONE, M.D., *President*.
FRITZ B. TALBOT, M.D., *Secretary*.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, April 26, 1913, at 8.15 p. m.

Paper by Dr. Harvey Cushing. The Surgical Aspects of Pituitary Disease.

Discussion.

Business: Report of the Librarian, Treasurer, etc. Election of Officers. Consideration of amendment to By-laws (as enclosed).

Refreshments after the meeting.

FRANK B. HARRINGTON, M.D.,
President.
WALTER C. HOWE, M.D.,
Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Modern Methods of Drug Standardization of F. E. Stewart, M.D., PhG. Germantown, Pa. Reprint.

Boston Lying-in Hospital, A Statement about its Service to Patients and the Public, its Managers, Physicians, and Nurses, and an account of its work in 1912. Boston, 1913.

Bulletin of The Lying-in Hospital of the City of New York, 1913.

University of Pittsburg. The School of Medicine, Bulletin 1912-1913.

Die Behandlung der Lungentuberkulose im Hochgebirge, by Dr. med. O. Amrein. Wiesbaden.

Bulletin of the Massachusetts Institute of Technology. Summer Courses, 1912.

A Contribution to the Problem of Convalescence, by Dr. Fred Brush, New York, N. Y.

RECENT DEATHS.

DR. FRANK LITTLE, of Brooklyn, N. Y., died April 4, at the age of 58 years. He was a native of Ridgeway, Penn., and was graduated at Wooster, Ohio, in 1881. He was formerly on the visiting staff of the Kings County Hospital.

DR. JOHN EDWARDS, of Gloversville, N. Y., died April 4. He was 66 years old, and was graduated from the College of Physicians and Surgeons, New York, in 1869. He was visiting physician to the Nathan Littauer Hospital and had been health officer of Gloversville for many years.

DR. SAMUEL RICHMOND, of the house staff of the Atlantic City Hospital, died March 31 at the home of his father in Passaic, N. J. He was in the 26th year of his age, and a graduate of the University of Virginia.

DR. M. ORDWAY DALY, who died on April 6 at Dorchester, Mass., was born in Boston on April 13, 1866. He graduated from the Boston Dental College in 1888, and since that time had practised his profession in Boston. He it survived by his widow and by one son.

DR. GEORGE MCCLELLAN, who died of cardiac disease on March 30, at Philadelphia, was born in 1858. He was professor of applied anatomy at the Jefferson Medical College.

Original Articles.

TRICHINOSIS.*

BY THOMAS F. LEEN, M.D., BOSTON.

Physician in Chief to the Carney Hospital, and Assistant in the Theory and Practice of Physic at the Harvard Medical School.

Of parasitic diseases none better than trichinosis opened up pathways for scientific progress and study, from the time in 1828 when small calcareous bodies were noticed in human muscle, up to 1898, when Thayer and Brown found practically pathognomonic blood changes pointing to an animal parasite in this disease. And at present, though of great economic interest, it has thrown open to biologists important questions, one in particular, the origin of the eosinophile, which, if discovered will be an important scientific acquisition. Clinically, the disease is a definite entity, with a symptom-complex based on pathological soundness, and though not frequent may be generally readily diagnosed. From this view it will be presented, as well as its interesting medical history, and the simple pathology of the parasite, which in every disease is of the utmost importance for proper understanding and treatment.

During the past six years there have been two cases at the Carney Hospital, the more recent one last October.

It is a febrile infectious disease appearing sporadically or epidemically, originating by infection with an animal parasite, a round worm, the trichinella spiralis, contained in pork, eaten raw or insufficiently cooked. Before 1860, the presence of the parasites in the muscles was regarded as an anatomical curiosity, until Zenker reported clinically his classical case in Virchow's Archives, Band xviii, which may be said to be the most important helminthological contribution of the 19th century.

Case 1. A girl aged 20 was admitted to the Dresden City Hospital on Jan. 12, 1860. She had been ailing from Christmas and about New Year had to go to bed, complaining of debility, sleeplessness, loss of appetite, constipation, fever and thirst. At first the fever was very intense and the abdomen distended and painful. Although there was no enlargement of the spleen, and rose-spots were absent, the diagnosis of typhoid was made. Very soon there developed throughout the entire muscular system, extreme pain, particularly in the extremities, so that she complained day and night. The arms and legs were bent at the elbows and knee-joints, and could not be extended without the greatest pain. An edematous swelling of the legs was present. Later a low typhoidal pneumonia appeared. The patient became profoundly apathetic and died on Jan. 27. The autopsy was performed next day, and to quote Zenker, "one can judge of my astonishment when I, in the first microscopic preparation, saw at a glance a dozen, non-encapsulated free trichinae in the parenchyma of the muscles." Further investigation showed the muscles swarming with worms. No involvement of Peyer's patches was present.

In this case he determined two points of vital importance, first, the presence of living adult trichinae in the intestines, and, second, found muscle-trichinae in the flesh of the animal, a portion of which the girl had eaten. To this newly discovered disease Zenker gave the name Trichiniasis. At once the disease began to be recognized, especially in Germany, where for years past inexplainable epidemics caused large mortality, supposed to be due to a chemical poison from rotten meat.

The first great epidemic of etiological importance occurred in Saxony in 1863, with a mortality of 16 per cent. Great astonishment was caused throughout Germany in 1865, when in the town of Hedersleben of 2,000 inhabitants, 337 were infected and 101 died. Klopsch in 1866 amputated a patient's breast for carcinoma, and while operating, found in the pectoral muscle encapsulated trichinellae which were still living. The affected patient remembered that in 1842, twenty-four years before, she, with two of her family had been taken sick for several weeks with violent bone, joint and muscle pain, and edema.

In 1851, several people near Hamburg, after eating ham, were taken sick, and three died. A cat having eaten also of it began to move about very slowly and in evident pain, later dying. The cause of the disease was unknown. One of those affected became insane, and at his death in 1865, Tungel sent a piece of his muscle to Virchow, who found it almost entirely infiltrated with calcareous trichinella capsules. Freed from the capsules the embryos gave positive signs of life and infected rabbits fed on them. This shows an exceptionally long life and ability of the encapsulated forms to infect for thirteen and a half years.

Geographically, it is universal, and epidemics have been reported in Germany, England, Austria, Switzerland, France, Russia; and in North America, first found in swine by Leidy in 1846 and in humans in 1864. It is widespread in North American swine.

Etiology. As Zenker first showed, the disease in humans is due to the eating of trichinous pork, and that its habitat is in swine. As well the rat is a carrier as it spontaneously infects itself. They have been found also in the wild-boar, mouse, cat, dog and some others. Experimentally the infection was produced in herbivora,—rabbits and guinea-pigs. The hog for man is always the most deadly carrier of this dangerous parasite. An infection by beef, veal, mutton or horse-flesh has never been observed. The trichinella spiralis is of the class of roundworms, parasitic in man and different animals, living sexually separated, and when isolated visible to the eye. In 1835 it was named by Owen, trichina spiralis, and sex differentiation was made out by Virchow and Leukart.

* Delivered Dec. 9, 1912, before the South Boston Medical Society.

The whole development-cycle combines essentially three stages: (1) the stage of sexual maturity or intestinal trichinae; (2) the emigration and growing of the young embryos in the muscle; and (3) the resting-stage or the muscle-trichinae.

The First Stage, or Intestinal Trichinae. When the infected pork is taken into the stomach the action of the gastric juice frees from their capsule, and connective tissue covering, the trichinae from the ingested muscle, and moving along into the intestine in two or three days they grow to mature males and females. Then copulation begins and also fertilization of the eggs. Four to five days after fertilization, that is, six to seven days after eating the trichinous pork, the birth of the embryos begin.

Without entering too deeply into the anatomy of the worm, there are a few facts you should know to aid you in the explanation of the migration of the embryos. The adult female is longer than the male, just over 3 mm., and the male one-half as long. Up to the period of copulation they are about the same size, but after, there is further growth of the female due to the stretching of the uterus. The caudal end of the female contains the ovary and from it the eggs pass upward through the oviduct to the uterus, where they are fertilized, and developing into embryos are extended into the vagina, which empties at the anterior fifth of the body. They appear first, as I have stated, six or seven days after the release of the muscle trichinae. At this time we find all stages of embryonic development, from eggs before fertilization, up to the perfectly formed embryo ready to be deposited by his mother.

The Second Stage of Development—the Embryos. As they are born they are very small and the sexes show no appreciable difference in size, as the adult, but are slender cylindrical worms, .08-.12 mm. Just before their birth their mothers bury themselves in the mucus and lie snake-like about the intestinal villi or penetrate the crypts of the lower duodenum and upper ileum. With a boring motion of their anterior end they raise up the epithelium and work into the stratum proprium or basement membrane of the mucous membrane, thus escaping eviction by peristalsis and moving intestinal contents empty their young brood directly into the lymph spaces. Only exceptionally are they born in the intestinal lumen, and it is then a question if they ever find their way to the lymph-spaces. They are born on an average of one every one-half hour, and the birth of countless embryos from the same female extends over several weeks. Staubli reckons 1000 embryos to a female, and Leukart 1500, and Krabbe fed 400 muscle trichinellae to a rabbit, and five and one-half weeks later its muscles contained several hundred thousand young worms.

How do they arrive at their destination, the striated musculature? This has been the subject of much discussion. The embryos, freed from the females in the intestinal walls, seek out, by their ability to move, the lymph vessels. Under certain conditions they are borne directly into a central lymph-vessel, and with the lymph they pass through the thoracic duct into the venous system to the heart, from where they are thrown with the blood, after going through the lesser circulation, into the peripheral arterial system. Hence they can be shown in the circulating blood at their maximum 8-25 days after infection.

The embryos leave the capillaries in the striated muscles, remaining only a very short time in the connective tissue, being found there only with great trouble, and penetrate quickly into the primitive muscle bundle, where they show their typical embryonic form. The fact that they are not found in the connective tissue, leads to the supposition that they are attracted to the muscle by some chemical affinity. Though the entire striated musculature may be infected, that of the diaphragm, intercostals, larynx, tongue and eye, is the more heavily hit, and this is not due to the fact of their easy and quick delivery to the groups of muscles lying in the vicinity of the diaphragm, but these muscles are the most active in the body and, therefore, have the richest blood supply. It is agreed unanimously that the beginning of migration to the muscles occurs on the ninth or tenth day after infection.

Inside the muscle fibre, the embryo quickly grows, due to osmotic absorption of food, and in ten to fourteen days it is about ten times its original size, and it begins in the third week after infection to roll itself spiral-like in the much swollen spindle-like muscle fibre, this process continuing for two weeks more, when it reaches its full growth.

Third, the Resting Stage. Hence, after four to six weeks from the ingestion of trichinous pork, the embryo enters the resting-stage, and then begins the formation of a capsule about it, taking three months for its completion, later becoming calcified. During its period of rapid growth important anatomical changes take place, especially the development of a digestive tract and sex organs. Spirally rolled within their capsules they remain in a latent stage, perhaps for years, when they finally, after ingestion in man's or an animal's stomach, are freed from their capsules and their new life opened.

Trichinellae, as well as in the blood and striated muscle, are found in the mesenteric lymph-glands, peritoneal cavity, pericardial cavity, pleural cavity, lungs and myocardium, but never as older or encapsulated forms, because as Graham has shown, they only have the power to grow in that particular type of muscle fibre which has a sarcolemma. Often heart-immunity is spoken of, as no one has ever found there perfect mature embryos. But biologically there is no immunity. Recent investigation shows that heart-muscle fibre in a certain sense possesses no sarcolemma, that is, no outside covering, and

when the embryo tries to bore in, there is nothing to resist it, as the contractile muscular protoplasm is washed away, and it always remains outside the muscle-cells, and acting as a foreign body and irritant, an inflammatory process starts up about it and it is destroyed. This same result occurs in connective-tissue and fat. But in the destruction of muscle-fibres secondary fat development results and surrounds the encapsulated embryos.

The symptom-complex may be divided into three parts corresponding to the life-cycle and pathology of the worm, as has been stated. When and how and what the early symptoms may be is inconstant. General constitutional and gastro-enteric disturbances are the rule. General discomfort, anxiety, dull heavy headaches, dizziness, nausea and vomiting, choking sensations, chilliness, and diarrhea, with more or less violent colicky abdominal pains. The vomiting and diarrhea may become intense, and the latter may be followed later by obstinate constipation. The appetite usually disappears. The tongue shows nothing characteristic, often dry and more or less heavily coated. During this general period of lassitude an increasing fever appears. Occasionally very early an intense lameness of the muscles appears, in flexors, neck, and lumbar region. Kratz found this in mild as well as severe cases, and considered it the most constant early symptom, which after some days subsides. The patients when this and the diarrhea subsides, think they are convalescing and some try to work, but are compelled to go to bed. This muscle-lameness appears before the beginning of embryo-wandering, and it cannot be explained by muscle-invasion. Some say it is due to reflex action from the intestines, others a sympathetic affection, but Friedrichs ascribes it, as well as the severe general disturbances, edema of face and the high initial fever, to an intoxication from dead trichinellae, as seen in roundworm, fish tapeworm and other parasitic infections.

The most important pathognomonic symptom, quite constant and often generally the first, is the edematous swelling of the eyelids, upper and lower, and of the face. Seldom is it lacking and first appears on the seventh day. Somewhat later, from the ninth day on, there is edema of the extremities, more often the legs than the arms, and as well at times the scrotum. Renz twice saw scrotal edema without heart-failure, or albumen in the urine. The lid edema after some days disappears and may return later, but that of the legs is obstinate and persists a long time into convalescence. It is not easy to explain the early edema of the lids on account of the many views, as embryo-migration, vaso-constriction caused by an irritant, and that of the extremities is laid to heart weakness.

The future course of the disease develops symptoms which better be discussed systematically in relation to the individual organs.

The *sensorium* is generally undisturbed, though delirium has been noted in a few fatal cases, accompanied with violent attacks of dyspnea. A meningitic picture, a curled up body, stiff neck, and Kernig sign, has been present, but lumbar puncture has been negative, indicating meningismus only. Bothersome sleeplessness at the height of the disease is very frequent, and may be present early, though from it children do not suffer. Epigastric pain occurs in the second week and is ascribed to the migration of the young brood to the diaphragm. "A sudden feeling of pressure and constricting pain in the pit of the stomach, extending to the back, strikes the patient with syncope and collapse, cold hands and feet, small, intermittent pulse," symptoms similar to what Romberg has described as celiac neuralgia. This attack may last from six to twenty-four hours, followed by a profuse sweat. Complete skin anesthesia, lasting for a few days, has been reported, and itching, and paresthesia occasionally.

A characteristic symptom is profuse sweating in mild or severe cases, appearing early and lasting throughout. The skin reflexes show no essential change, but the patella, tendo-Achilles, and triceps reflexes are frequently lost or diminished, returning as patient improves. There is a change in the electrical reactions of the muscles.

Temperature may be absent, especially in children. However, in most cases there is more or less elevation and in severe cases to 104° and more, beginning the first day and reaching its maximum generally in nine to eleven days Frequently the temperature curve runs as a typical typhoid, showing often morning remissions. If it continues indefinitely or is interrupted by new elevations, there are generally complications of the respiratory tract.

The pulse early is hardly more frequent than normal, from 80 to 90, and is similar to a typhoid. When there is beginning respiratory trouble, there is an increase to 100-120. Rarely are there striking disturbances of heart activity, as intermittent pulse with bradycardia to 48, and in women the development of soft murmurs.

Gastro-enteric symptoms, especially the early, have been spoken of. Also severe diarrhea, or obstinate constipation, with abdominal pains, can continue throughout. Mucus, muco-bloody and bloody stools have been described, the latter causing death. At autopsy in such cases gastric, duodenal and intestinal ulcers were found, and experimentally there seems to be a relation between the two, for in a trichinous infected cat, three round ulcers of the duodenum were found, and four times in infected rabbits hemorrhages and hemorrhagic erosions of the gastric mucous membrane were seen. These may be due to embolic obstruction of small vessel-areas by wandering embryos.

The spleen generally is not enlarged, though one observer noted it present in 38 out of 46 patients, and if it is, it is due to a mixed infection, and not a peculiarity of the disease.

Muscle-lameness, appearing as an early symptom, merges slowly to muscle-stiffness, due to embryo migration and ultimate changes resulting. This depends essentially on the intensity of the disease, that is, on the number of parasites piercing the muscle, for in mild cases and in children it may be absent. The patients feel as stiff as a poker, and the muscles are swollen, of wooden hardness, and very sensitive to pressure. Motion causes intense pain. All the muscles may be hit, yet the neck and lumbar muscles more so, but less the muscles of the extremities, particularly the flexor, so that the patient presents a typical posture as he lies motionless, holding his limbs in a moderate position of flexion, as though he had acute angular contractures of the elbows and knees. Muscle weakness of the highest degree may be present without considerable sense of pain. The muscle stiffness sometimes disappears in five days, and has lasted 112, but generally in severe cases five or six weeks, corresponding to the pathologic changes. The muscles of mastication and swallowing may be affected and lead to trismus. The tongue is often difficult to move on account of its increased size, and the laryngeal muscles are severely attacked, speech-function suffering, hoarseness, and later aphonia and edema of the glottis.

The migration into the respiratory muscles, the diaphragm, intercostals and sterno-cleido-mastoids make respiration very difficult and painful, resulting in serious dyspnea, inactivity of the diaphragm, and serious hiccoughs. The respiratory interference and its sequelae play an essential part in the fatal cases. Sometimes the first symptoms may be swelling and pain in the muscles without temperature, and slowly developing and creeping leads to severe trichinosis. Sometimes cases of so-called rheumatism of the muscles, with "rheumatic pains" of one to ten years' standing, were correctly diagnosed by muscle excision and evidences of trichinella found.

The eyes sometimes have limitation of motion in conjunction with eye-pains, conjunctivitis of a severe nature, with well-marked subconjunctival ecchymoses appear. The eye-grounds are negative.

Very often bronchial catarrh, due to deficient expectoration on account of weakened respiratory muscles, with often broncho-pneumonia and a harassing cough, or frank pneumonia, is present.

The skin shows sudamnia from the profuse sweats, severe itching, and occasionally petechiae. Acne and furunculosis are frequent, and herpes rarely.

Slight urinary retention is frequent and incontinence when there is great weakness. The urine is of the fever type and albumen and casts appear when the renal irritation is severe. A very strong diazo-reaction appears, much more so than is ever seen in typhoid or tuberculosis, and is a constant phenomenon.

The stools are diarrheic, pea-soup, or rice-water in character, occasionally bloody, or constipation may be present. Few cases have been reported where the embryos or parasite were found in the stools.

Sputum shows eosinophiles, and where blood has been raised, in a case of Askanazy, embryos were found.

The blood in trichinosis is not only of the greatest importance for differential diagnosis, but to the actual meaning and origin of the eosinophile it is of general scientific interest.

After infection the first stage shows a polycythemia and a polychromhemia, and later a mild anemia develops. There are no morphological changes, as poikilocytosis and blast-formation, and these cannot be produced experimentally in guinea-pigs, even to lethal dosage. The leucocytes diminished in typhoid are increased in trichinosis, and the great increase is due to the eosinophile. It is to the great credit of American medicine that this was proven, the first observations being made in four cases at the Johns Hopkins Hospital by Thayer and Brown in 1897. The severer the disease the greater the eosinophilia. Of 44 severe cases 33 gave estimations above 20 per cent. and of 16 mild cases only five. Of this group the highest estimate was 62.2 per cent., and experimentally in guinea-pigs 52 per cent.

In severe cases the clinical symptoms are so marked and distinctive that from them a positive diagnosis may be made, but the inestimable value of an eosinophilia in mild or moderate cases is of the greatest importance.

Experimentally after feeding trichinellae to guinea-pigs the following results were obtained:

1. A leucocytosis appeared in seven to thirteen days.

2. A genuine eosinophilia appeared.

3. The increase of the eosinophiles appeared earliest in eight days.

The eosinophilia appears not at the time of the worm infection as a result of poisonous materials from the capsule freed in the stomach, and absorbed in the intestine, nor as a result of chemical processes in the intestines, but stands in close relation to the migration of the embryos and their entrance into the musculature. For months and even years after recovery these cells are increased.

In mild cases the disease lasts two to three weeks, but much more often six to seven weeks, and in a large number of cases much longer. According to Stiles, Wardwell and Hasall in Germany were observed, from 1860 to 1880, 8,491 cases with 513 deaths, 6.04 per cent.; from 1881 to 1896, 6,326 cases with 318 deaths, 5.02 per cent.

In epidemics the mortality varies from 30 per cent. to nil. Death occurs as early as the end of the second week and the majority from the third to the fifth week.

Here I want to report one of our cases at the

Carney which readily fits in with what you have heard.

Case 2. She was 32, single, a cook and lived in Roxbury.

Family History. Negative.

Past History. Excepting two minor accidents she had always been well. Habits showed excessive tea-drinking.

Previous Illness. Eight days before admission patient had an indefinite chill. The next morning her eyes were swollen, and she felt sick, but was up and about. Previously she had felt well excepting constipation for a week preceding. Seven days ago she vomited green mucus and food, and had a headache. Since then has been in bed most of the time with persistent severe headache, nausea and fever. Has no appetite. Under vigorous cathartics bowels moved freely. No swelling of legs. Has soreness in muscles of legs, neck and arms. Has been sleeping poorly. Has a history of eating boiled ham about ten days before the onset.

Physical Examination. W. D. and N. Rather alert young woman lying comfortably in bed. Lips slightly cyanotic. Skin clear. Slight puffiness under eyes. Pupils slightly irregular in outline, and react to light and distance. Ocular movements normal.

Teeth well cared for. Tongue clean, dark red. Throat reddened.

Neck. No spasm, nor tenderness of muscles.

Glands. None felt.

Chest. Well formed, expansion good on both sides; rather more on right.

Lungs. Negative.

Heart. Negative, except for some rapidity.

Radial Pulse. Small volume and not Dicrotic.

Abdomen. Negative. Spleen not felt. No rose spots.

Extremities. Very slight pitting of skin of both legs, as high as knees. No scars.

Reflexes. Knee-jerks lively. Achilles normal. No clonus; no Kernig.

Oct. 30. Stool liquid, yellow, no blood, no parasites or ova; negative to guiac test.

Blood Examination. Hgb. 90 per cent. Leucocytosis 15,200. Polynuclears, 60 per cent. Large mononuclears, 6 per cent. Small. Mononuclears, 4 per cent. Eosinophiles, 28 per cent. Transitionals, 2 per cent.

Nov. 1. Blood and 3 per cent. acetic acid in equal parts showed no parasites.

Nov. 3. Muscular tenderness has not increased.

Nov. 4. Distressing pain on breathing with cough and signs of a pleuritis in lower right back and a bronchitis found.

Nov. 5. Patient very sick, right face flushed. She is nauseated and vomits. No definite consolidation made out. Leucocytosis, 22,800. Polynuclears, 70 per cent. Eosinophiles, 4 per cent. Large mononuclears, 12 per cent. Small mononuclears, 11 per cent. Transitionals, 4 per cent. Distressing chest pains and cough severe. Urine shows blood and coarse granular casts, and albumen.

Nov. 10. Feels much better, but still has pains and cough. Temperature normal, and patient spends more comfortable nights.

Nov. 12. Leucocytosis was 18,400, and eosinophiles 7 per cent. Urine still shows irritative elements.

Nov. 15. Pains in mouth, teeth and gums, but dentist cannot find anything the trouble with teeth.

Nov. 19. Leucocytes, 12,800. Eosinophiles, 3 per cent.

Nov. 22. Very much better, no pains nor aches. Complains of much distress after meals. General improvement was steady and she was discharged Nov. 28, 1910, thirty days after admission.

That case, you see, is typical and though it appeared in the typhoid season, one familiar with the clinical aspects of trichinosis could readily diagnose it.

As regards immunity, there is none, for every animal susceptible to it may be reinfected.

Differential Diagnosis. It is an acute febrile sickness with more or less marked gastro-enteric symptoms, lameness of the muscles, edematous swelling of the face, mainly the lids, redness, and, eventually, ecchymoses of the conjunctiva, disturbing sleeplessness, profuse sweats, muscle pains, muscle stiffness and hardness, absence of patellar and Achilles reflexes, Kernig phenomenon, absence of enlargement of the spleen, strong diazo-reaction, and blood showing leucocytosis, eosinophilia, embryos circulating in the blood, and muscle trichinae in striated muscle.

To differentiate it from typhoid is confusing because of the slow onset, gastro-enteric disturbances, a continued and ascending temperature, the apathy, the positive diazo, especially when there is no enlargement of spleen and no Widal. But against it are the face and lid edema, the marked muscle symptoms, and the later absent spleen, absence of rose-spots, and the leucocytosis and eosinophilia.

Heart and kidneys as causes of the edema may readily be excluded by stethoscope and urine; as well as inflammatory process of face or scalp.

Against sausage and meat poisoning of a toxic nature, trichinosis is not so sudden or violent, and the absence of edema of lids, muscle lameness and of blood picture.

Rheumatic troubles may be ruled out by edema of face, eosinophilia, and cause of the disease.

Acute primary polymyocitis is difficult to differentiate, as the eosinophilia does not aid, but examination of muscle from the deltoid or biceps will show trichinellae, and perhaps the blood embryos.

Multiple neuritis is easily differentiated.

Therapy. If only a short time has elapsed after eating the infected food, copious stomach washings and thorough catharsis should be tried. Strong antithelmintics, such as santonin, extract of male fern, glycerine and benzol in frequent large doses. Later the fact that the worms are pressed in the crypts and intestinal mucus, strong drugs might tend to drive the worms further into the mucous membrane. So cathartics are given, as calomel, compound infus of senna, castor oil, etc., to keep the intestine thoroughly clean and wash away any worms which have temporarily lost their grip. For direct action on the worm, glycerine, benzol, the

picronitrate of potash and soda. Now that Ehrlich in chemico-therapeutic experiments has given us salvarsan and neosalvarsan, they are well worthy of trial to kill the embryos in the blood. Colloidal silver (kollargol) 4-6 c.c. of a 2 per cent. solution has been tried intravenously for the embryos. Symptomatic treatment, as each case demands, should be given, and diet accordingly.

Prophylaxis. The mode of infection is well known, therefore we must prevent the eating of raw or insufficiently prepared pork products, and further efforts to fight the infection in swine. All slaughtered hogs should be inspected with the microscope, for early trichinous pork cannot be detected with the naked eye, though the older forms may be seen as white calcified pinhead specks on and in the muscle. Inspection of the diaphragm, ribs, larynx, and tongue muscles should be made always, on account of their frequency of infection. No land is free of the disease. The largest percentage of infection in swine is in the United States, from 2.7 to 16.3 per cent. Curiously, we have no inspection for the pork we raise and eat, but what is exported we must inspect, especially if we wish to send it to Germany. Another factor is the rat infesting slaughterhouses and piggeries, and spreading the disease in swine. They are carnivorous and eat infected pork, and at their death are eaten by the swine. In Saxony, of 704 rats examined 8.3 per cent. were trichinous. Swine eat pork also and may be infected so.

Much work has been done scientifically on trichinosis which has not fallen into the hands of the general man, and what I have tried to give you are facts and some hypotheses about a simple disease, but one to practitioners and students that seems shrouded in difficulty and mystery.

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THE DIAGNOSTIC SIGNIFICANCE OF THE LEUCOCYTE COUNT IN OSTEOMYELITIS AND TUBERCULOSIS OF THE BONES IN CHILDHOOD.

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LEUCOCYTOSIS is the presence in the blood of an increased number of white corpuscles, of the same varieties as occur in normal blood. It is present in many physiological conditions, but it is of especial interest as a pathological phenomenon, taking a leading part in the reaction of the individual to infection by pyogenic bacteria. In the adult, a number exceeding 9,000 per cubic millimeter may be considered a leucocytosis, but in children, whose physiological equilibrium is normally unstable, any number of leucocytes between 6,000 and 12,000 may be considered normal.

As to the significance of leucocytosis in pyogenic and tuberculous bone infections, especially in childhood, I have been unable to find satisfactory comment in the literature, beyond the general statement that leucocytosis occurs, and is usually very high, in the former and that it is low in the latter, constituting, therefore, a basis for differential diagnosis between the two. The data, and conclusions therefrom, presented in this paper, are consequently drawn from leucocyte counts made during the last few years on patients in The Boston Children's Hospital, without reference to other findings.

Since Sept. 1, 1907, 35 children with osteomyelitis have had leucocyte counts, a total of 51 counts having been made on these cases. In the last two years, a more routine and thorough examination of patients with this disease has been made, and the average leucocyte count has been found to be lower, which may be explained by the fact that in the less recent cases, white blood counts were made only in the presence of serious symptoms, poor general condition or obscure local conditions. This count arranged by periods, is as follows:

Sept. 1, 1907 to Jan. 1, 1909, average count	25,800
Jan. 1, 1909 to Jan. 1, 1911, average count	18,300
Jan. 1, 1911 to present date, average count	17,800
In the last year only, the average count is	16,200

If leucocytosis of any significance be considered a leucocyte count of 12,000 and above (in patients below the age of 12), and a count of 18,000 and over signifies a distinct reaction to infection, the 51 counts taken on these cases group themselves thus:

12,000 and below	12 or 24%
12,100 to 18,000	19 or 37%
18,000 and over	20 or 39%

As far as could be ascertained, 34 of these counts were taken in an acute stage of infection (for the most part recent in onset), 17 in chronic

stages. The average count in the acute cases is 22,200; in the chronic 14,600. The size of the count seems to have a direct relation to the temperature, as may be seen in the following table:

TEMPERATURE.	NUMBER OF COUNTS.	AVERAGE COUNT.
Normal to 100	9	11,300
100 to 102	15	16,300
102 to 104	19	22,200
104 and over	8	28,000

Moreover, the leucocytosis shows a corresponding relation to the general condition of the patient. In 9 counts on cases characterized as in "bad" or "poor" condition (from toxemia or a generally lowered resistance), the average count is 32,000; in 25 counts where the condition was "fair," 18,200; in 17 counts, condition "good," 15,100. This to a large degree explains the lower leucocyte count of later years (as given above), 42% of the cases in the last two years being in "good" condition, with only 16% "poor," as against 20% "good" and 20% "poor" in the previous years. In no case was a "poor" general condition accompanied by a very low or absent leucocytosis, this indication of high virulence of the infection or extremely low resistance of the patient not being observed in this series.

In reference to the local conditions in these cases, and the relation of the white count to the presence of pus or sequestra, with and without drainage, the following is a brief summary.

Seven cases were not operated on; the average of the 8 blood counts on these cases is 13,000. In all of these the general condition was "good" or "fair," the temperature low, and the condition cleared up with rest or apparatus, there being a doubtful diagnosis of osteomyelitis in two cases.

In the remaining cases (in which an operation was performed), 23 counts were made before operation and averaged 23,200; 20 counts made after operation averaged 17,900.

In 5 cases having a count both before and after operation, the average drop in leucocytosis is 7,400, pus or dead bone being found in 4 of these cases and free drainage established. In the 5th case there was an increase of 2,500 leucocytes, no pus or sequestrum being found at this operation.

In the other cases, 16 had counts only before operation; of these, 8 were over 18,000 and these were for the most part in "fair" or "poor" condition, had a high temperature, and in each case pus or dead bone was found at operation. The other 8, with leucocytes below 18,000, had a temperature of 99-100, were in "good" condition, (three cases were possibly tuberculous joints), and pus or sequestra were found at operation.

Nine cases had counts only after operation. In four of these the count was over 18,000 and their condition was recorded as "poor," the temperatures averaging 102 degrees. While pus was found in 3 of the operations, drainage in only one case could be considered free at the time of the count. The 5 cases with counts subsequent to operation below 18,000 were in "fair" condition, pus being found at the operation and drainage established.

Among the cases operated upon there were four in which neither pus, dead bone nor detritus was found. In these the leucocytes ran from 12,000 to 43,000, the temperature from 99 to 104, the general condition from "poor" to "good," a low count being accompanied by low temperature and good condition, a high count by the contrary.

As to the location of the disease, the majority of cases upon which these counts were made had involvement of the femur or hip, the tibia coming next in frequency. The leucocytosis in infection of the different bones averaged about the same and locality appeared to be of no significance.

SUMMARY.

The leucocytosis in osteomyelitis varies from normal to 40,000 in cases which at first glance may present few clinical differences. The average leucocyte count in cases, most of which are severe, is 20,000 and over, but in the more routine examinations of all cases of osteomyelitis the average count is 16,000 to 17,000.

On careful examination of the cases, marked differences may be noticed, and the relation of these differences to leucocytosis appear to follow certain definite principles, so that the white count may be to some degree predicted from the other symptoms. The count distinctly varies with the acuteness of the process, the more acute the case the higher the count. It varies with the general condition, the poorer the condition the higher the count. The degree of fever is a very constant variant with the degree of leucocytosis. A high count is significant of the presence of pus or sequestra, obtaining no drainage or poor drainage; a low count follows operation with evacuation of the inflammatory products. A high count may, however, be present when no pus is found at operation, the general condition in these cases usually being low. From a diagnostic stand point, a low count is indicative of either a low grade process, a long standing process, an acute process with free drainage, a good general condition regardless of local conditions, or any combination of these; a high count is significant of the opposite. A high count with free drainage may be accounted for only by an extremely low condition (as from long standing sepsis before operation), or by other infectious processes (as pneumonia or otitis media, which occurred in two of these cases). A low count is not incompatible with a severe infection, for, although suggestive of other conditions (as tuberculosis), it must be

remembered that 60% of this entire series was below 18,000.

Since July 1, 1912, leucocyte counts have been made on 53 patients presenting the clinical symptoms of bone and joint tuberculosis, there being a total of 56 counts. The average of these counts is 11,600, and of these 37, or 66%, were 12,000 and below, 12, or 21%, between 12,000 and 15,000, and 7, or 13%, over 15,000. In other words, two-thirds of the cases had no leucocytosis, and but one in eight could be said to have had a significant count.

As to the count in acute and chronic stages of the disease, 62½% were made in a decidedly acute stage (most hospital cases being naturally acute), with an average count of 11,400; the remainder, in chronic stages, showed a count of 11,900, there being, therefore, no marked difference. Thirty-one cases had counts while in a condition characterized as "good"; these averaged 11,300. Twenty patients in "fair" condition averaged 12,200 and 5 in "poor" condition averaged 9,000, showing that there is no significant relation between the general condition and the count. The highest count of the entire series, 26,000, was on a patient in distinctly "good" condition, while the highest count of the 5 cases in "poor" condition was 13,400. The possibility that the lower the condition the lower is the count may, of course, be entertained as evidence of secondary anemia.

As to the relation of the count to the temperature, the following was observed:—

TEMPERATURE.	NUMBER OF COUNTS.	AVERAGE COUNT.
Normal (99 and below)	23	11,400
99 to 100	27	10,900
100 to 101	5	15,900

While this is not the exact relation to temperature shown in osteomyelitis, there is probably some significance to the leucocytosis in cases running a temperature over 100. The question arises if this is not due to the presence of other organisms than the tubercle bacillus, as of these 5 cases, one had a slough, one an indolent ulcer, one a sinus, and one a condition which had favored a diagnosis of toxic arthritis. It is certainly significant that of the 7 cases in this series which had a count over 15,000, 6 had other conditions which might account for the leucocytosis, and, conversely, the average white count in all cases in the series in which there was a question of any other trouble was 15,600. But one case with a frank leucocytosis could not be accounted for, and this might be due either to the presence of another condition not diagnosed, or to an error in counting the blood. It is well also to note here that the date of the Von Pirquet test was seldom recorded, and it is possible that the blood count on some of these cases was taken on the day or two in which the slight reaction from the test occurred, thus explaining the fact that the temperature was often higher than normal on the day the count was made.

Although one of the cases with high counts, given above, had an abscess, and another a sinus, the average for cases with abscess, of which there were 15 in the series, was 11,400. The average of 4 cases with sinus was 13,000, and while this was a trifle high, the difference between this count and the average of the series is hardly as marked as might be expected.

There seems to be little difference in the average counts in cases in which the tuberculous process was of long standing and in those in which the process was recent in origin. Thirty-three old cases averaged 12,500 and 20 new cases averaged 10,600, this result depending probably on other factors in the individual cases. Likewise, there were three cases with tuberculous involvement in other regions than the one undergoing treatment at the time of the count. The average for these was 11,000, the presence of multiple foci evidently not influencing the count in the same way it may influence the virulence of the tuberculous process

As to the location of the tuberculous focus in these cases, there were 26 hips, with an average count of 11,000; 21 spines, average count 9,500; 9 knees, count 14,700; one ankle, count 14,000. From this it would appear that knees give the highest count, hips next and spines lowest. Whether there is any significance to these figures it would be hard to say, for although other factors may have influenced the count in a few cases, the greater possibility for the presence of other organisms with the tubercle bacillus in the knee, than for mixed infection in the spine, should not be overlooked.

All the cases in this series were diagnosed clinically as bone or joint tuberculosis. In 51 of the 53 cases the Von Pirquet reaction was tested, and was found positive in all but three. Of these three cases, one was a hip which exhibited a new acute process, the patient being in good condition with a low temperature. The white count was 8,800. The other two cases were spines, both in chronic stages of Pott's disease, in good condition with little fever, the counts being 9,000 and 6,200, respectively. While the failure of the first two of these to show a tuberculin reaction may have been due to error in technic, the last case was tested at two different times, and was probably one of those unusual cases of advanced bone tuberculosis which give no reaction to tuberculin. It is certainly apparent that there is no relation between the presence or absence of the Von Pirquet reaction and the white count in cases which are clinically tuberculous, those few cases of this series with negative reactions giving a count lower, if anything, than the average of those which are positive.

SUMMARY.

As distinguished from osteomyelitis, the results of an investigation of the significance of

the leucocyte count in tuberculous bone disease are largely negative, the evidence being distinctly against leucocytosis of any degree. The white count, whether above or below normal limits, does not seem to vary with any constancy with the acuteness or recency of the process, with the temperature or general condition of the patient, or with the presence or absence of abscess and sinus, multiple foci or a positive Von Pirquet reaction. It is, on the other hand, influenced by the presence of other conditions which favor infection by other organisms, such as (in this series) sloughs, ulcers, arthritis, and possibly the location of the process. Even in these cases the count is but slightly increased, and raises the question if the presence of a tuberculous focus does not perhaps tend to keep the white count low, especially in advanced cases with slight secondary anemia.

CONCLUSIONS.

The routine examination of children with tuberculosis of the bones and osteomyelitis, two-thirds of the cases in both diseases being in an acute stage, shows an average white count of 11,600 for the former and 16,200 for the latter, a significant difference of about 5,000 leucocytes. That this difference is constant, and is a reliable factor in diagnosis, is shown by the fact that in osteomyelitis but 24% of the counts were below 12,000, as compared with 66% in tuberculosis, while 39% of the former were over 18,000 and but 13% of the latter over 15,000. This difference is still more emphasized in the acute cases, which make up the majority seen in hospital practice, the average for osteomyelitis being 22,200 and for tuberculosis 11,400, a difference of nearly 11,000.

The conclusion to be drawn from this series is, therefore, largely a confirmation of the well-known theory that leucocytosis does not occur in bone infection by the tubercle bacillus, but only in the presence of a pyogenic organism. Cases which are clinically tuberculous, and have a high white count, must find their explanation in some other focus of infection, or in a mixed infection at the original site. The only cases offering difficulty in diagnosis from the white count alone are those cases of osteomyelitis with a normal count or very low leucocytosis, which are commoner than most text-books affirm. In these, the relation of the count to other symptoms, such as the fluctuation of the count with the temperature or with the general condition (a relation which does not exist in bone tuberculosis), the presence of a freely draining bone abscess, especially if the count is low following operation, or the existence of a long standing, low grade process in a case in which the count has been at one time high, should point to a diagnosis of osteomyelitis, to be readily confirmed by other diagnostic data.

The number of cases from which these conclusions are drawn is relatively small, and the data from some of their records inconclusive; presumably these figures add no new ideas to the subject, but they are at least confirmatory and suggestive of the general significance of the leucocyte count in the commoner bone infections of childhood.

ASPECTS OF THE MILK SUPPLY.

I.

SOME FEATURES OF THE MILK SITUATION.*

BY JAMES O. JORDAN,

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As it would be impossible to encompass within a limited discussion any considerable portion of the so-called milk problem, it is necessary to dwell only upon some of the features of this question.

The territory from which a supply is derived is of importance in the furnishing of milk for a city of Boston's size. This area might be termed a milk shed, and that for Boston is so large that it extends from Northern Maine, through New Hampshire, Vermont, and into New York and Connecticut, and includes 6,700 farms. Massachusetts also contributes to the quantity of milk consumed here, but this amount is lessening yearly, as can be demonstrated by the number of cows upon which taxes were paid in the years 1906, 1911 and 1912. In 1906 these animals numbered 181,816; in 1911, 166,500; and in 1912, 161,608. Thus the decrease in the number of cows from 1906 to 1912 was 20,208, and from 1911 to 1912 the decrease was proportionately larger and numbered 4,892 animals. This is a situation suprising to some, and deserving of thought by those favoring a near-by milk supply. Rhode Island is the only New England state from which milk is not sent to Boston. Coming from such a large area means that some of this product is brought from a long distance; in fact, milk arrives here daily which is transported by railroad 260 miles, and there is an emergency supply which is drawn upon only in times of great shortage, which is transported over four hundred miles. This latter haul at first thought seems appalling, and yet milk products are shipped daily to New York City over a like distance. If nearness of supply is advantageous, Chicago is more favorably situated than either New York or Boston, for the bulk of the milk consumed in Chicago comes from a territory within seventy-five miles of the city, and the longest haul is only ninety miles.

Boston is peculiarly situated in other respects, for besides the water frontage, which reduces the number of directions from which the milk supply can be drawn, there is the further consideration that there are many near-by cities and towns which not only consume the milk produced in their adjacent territories, but to an increasing degree use the product from the far away dairies.

* Read at a stated meeting of the Boston Medical Library, February 19, 1913.

as Boston is compelled to do. To this extent the supply for Boston is like that of the neighboring cities and towns. Most New England dairies are small, which means that the supply must be procured from more farms than holds true where the production units are larger.

Is nearness of supply to be desired? From the standpoints of freshness, of dairy inspection, and when necessary, the procuring of information concerning the health of individuals who have to do with the production of milk, it has many advantages. But unless brought from extremely long distances and with equally good dairy conditions, milk if properly iced upon a railroad car keeps as well, and probably in most instances better, than if retained at the ordinary dairy awaiting transportation to the city. Yet it is the fact that the distance from which the milk used in Boston is being obtained is being increased constantly, and under prevailing conditions that policy of extension must continue. As an illustration, at one time recently, when the cream supply would not meet the demand, this product in limited amounts was brought here from Canada.

What has been done for the safeguarding of the supply? In 1904 the Board of Health began a bacteriological investigation of this commodity which has since been continued, and in 1905 and since that time, great attention has been given to the temperature of milk during transportation and also after its arrival in this city and while awaiting delivery. It is my opinion that the work carried on in these directions has had more to do with awakening interest in the milk situation of this city than any other factors. But regardless of this belief, it is true that from the commencement of these examinations, a movement began on the part of the large dealers for increased oversight of their supplies. Dairy inspection was instituted by these concerns and continued for several years. In this endeavor thousands of dollars were expended, probably in amount totalling more than the State and all of the cities of Massachusetts combined have spent in this particular endeavor. Other methods, as the circulation of printed matter and lectures, were employed by the dealers to secure better production conditions. Eight of these firms also established bacteriological laboratories. As showing the extent of the work of these laboratories, it can be stated that in 1911, 90,207 milk counts were made. Undoubtedly the energy and money expended in the attempt to better Boston's milk supply by the above and other firms has never been equalled by milk concerns in any other city of like size. From this consideration much credit is due to the local dealers. The State Board of Health has carried on dairy oversight for several years, and a part of this endeavor has applied to the farms sending milk to this city. This oversight on the part of the State has been restricted, however, by both funds and lack of direct authority to enforce recommendations. In the latter part of 1910 active dairy inspection was inaugurated by the Boston Board of Health, and for the year ending Feb. 1, 1912, there were 9,356 inspections, of which 7,834 were satisfactory and 1,522 unsatisfactory, and the product of five hundred of the latter was permanently excluded from Boston by reason of unwillingness of owners to coöperate with the Board in the production of sanitary milk. The product of twenty-five dairies was temporarily excluded on account of the existence of communicable diseases upon the farms. Creameries and the milk-handling plants of local licensees also come under the supervision of the Dairy Division.

Efforts have been made by dealers to improve the supply within the city, but of this feature more will be said later. In this connection the the bacteriological tests made in the Bacteriological Laboratory upon samples procured by the Bureau of Milk Inspection are of interest. The specimens thus taken are divided into three classes: namely, those from contractors, *i.e.* taken from the cars as they arrive in this city, from wagons, and from stores. The standard adopted by the Board of Health is 500,000 bacteria to the cubic centimeter. The results obtained appear below:—

Year.	Under 500,000 Bacteria per c.c. Per cent.	Above 500,000 Bacteria per c.c. Per cent.
CONTRACTORS' SAMPLES.		
1905	87.60	12.40
1906	89.98	10.02
1907	83.70	16.30
1908	86.42	13.58
1909	88.62	11.38
1910	86.51	13.49
1911	89.70	10.30
1912	91.27	8.73
WAGON SAMPLES.		
1905	54.40	45.60
1906	52.21	47.99
1907	59.73	40.27
1908	72.15	27.85
1909	75.39	24.61
1910	83.42	16.58
1911	81.43	18.57
1912	83.67	16.33
STORE SAMPLES.		
1905	28.50	71.50
1906	18.99	87.01
1907	36.00	64.00
1908	43.41	56.59
1909	54.74	45.26
1910	77.80	22.20
1911	76.83	23.17
1912	67.99	32.01

Upon analysis of the results of the samples from contractors it would appear that if the findings for the year 1907 were eliminated, no material gain has followed from these examinations. As far as the total percentages are concerned this conclusion would be substantially correct, but in detail such assumption would be erroneous, as there has been a yearly constant gain in the percentage of specimens containing 200,000 and less bacteria to the cubic centimeter. In

1905 the percentage under this classification with 50,000 and less bacteria per cubic centimeter was 59.8; in 1912 the corresponding figure was 66.28. Unfortunately these total results do not mean that about ten per cent. of the dairies so tested fail to comply with the standard. If this was an actual and stable condition, the application of a remedy would be simplified. Practically we deal with specimens and not dairies, and a dairy from which samples upon one day have a high bacterial content, may send milk here on the following day of the opposite character, and this condition may be reversed with the product from another farm, with low counts on the first examination and high ones on the second testing.

With the wagon specimens, and these may be considered as representing milk practically a day older, *i.e.* milk which is delivered to consumers one day later than that procured from contractors, and which has been subjected to repeated handling, there has been, excluding the 1906 results, a constant gain from the bacteriological standpoint. There is also the further fact of marked increase by years, of the percentage of samples having 200,000 or less bacteria to the cubic centimeter, and of the findings for 1912 of the 83.67 per cent. of specimens complying with the standard, 77.43 per cent. had 200,000 or less bacteria to the cubic centimeter.

Concerning the store milk, and this is the oldest milk and that which to a large degree has had the most handling, there has been a marked improvement and yearly gain, if the results of the 1906, 1911 and 1912 examinations be excepted. The notable increase in percentage of samples with less than 500,000 bacteria from 1909 to 1910 may be attributed to the regulation requiring the sale of shop milk in bottles. In 1911, when this regulation was declared unconstitutional by the Supreme Court, more "loose milk" was sold in shops than in the preceding year, and this condition has prevailed since that time, and is believed to have been a contributing factor to the low percentage of specimens complying with the standard in 1911 and 1912.

Viewed as a whole these results, while indicating an improvement in Boston's milk supply, point also to the difficulties of supervision of this commodity by bacteriological means alone. Bacteriological results, while a useful index to the quality of milk, can only be safely considered as one of the methods to be employed in its supervision from producer to consumer. Furthermore, it seems fair to assume that the application of bacteriological tests for determining the character of milk has not covered a sufficient length of time to warrant the adoption of such findings as a principal factor in its oversight, and upon which to base extensive legal proceedings. Any endeavor to do so under present conditions would be fatal to the advance already secured by the application of bacteriology to the betterment of this product. A plan which would be more advantageous to both consumer and dealer would be that of publicity, *i.e.* to require Boards of Health to publish in monthly bulletins or newspapers the results of bacteriological counts where the specimens exceeded a fixed standard. This would afford the consumer ample opportunity to know the quality of milk which he was purchasing.

What has been chiefly responsible for the apparent improvement of wagon and shop milk, as denoted by the bacteriological tests? This seeming gain would indicate, considering the findings from the examination of contractors' samples that greater progress had been made within than without the city. To some, those opposed to pasteurization, this condition may be more apparent than real, for of the contributing factors, that of heat has probably been the most efficient in the reduction of bacteria in the wagon and shop milk. Some of the other agencies have been refrigeration (and this includes icing even while the milk is being delivered from wagons), improvements in milk-handling plants, the washing of cans sent into the country for milk, the cleansing of bottles returned by consumers to milkmen, checking the misuse of milk containers, as employing them for other substances than milk products, and requiring the sale of shop milk in bottles.

This has necessitated a vast expenditure of energy and money, both by the Board of Health and by the dealers. There is probalby no milk concern in this city, whose business is of any magnitude, which has not, either upon recommendation of the Board of Health or of its own volition, made partial or complete changes in its milk handling methods in the last few years. Thus there have been other factors besides that of pasteurization which have aided in lowering the numbers of bacteria in the wagon and shop milk.

At present there are about 268,000 quarts of milk consumed daily in this city, and the major portion is of the ordinary or common grade. Of this amount 9,830 quarts, or 3.67 per cent., may be termed reasonably clean milk, that which is sometimes called "inspected milk," and 2,362 quarts is of the certified type. The number of quarts of milk of these latter varieties consumed daily in Boston, beginning with 1907 and ending with 1912, has an important bearing upon this subject.

	INSPECTED.	CERTIFIED.
1907	8,950 qts.	855 qts.
1908	7,006 "	955 "
1909	10,580 "	1,032 "
1910	11,304 "	1,216 "
1911	14,117 "	1,797 "
1912	9,830 "	2,362 "

The milk usually termed "inspected" is guaranteed solely by dealers and some of it cannot strictly speaking be thus classified, because of the absence of certainty of the animals having been subjected to the tuberculin test and by

reason of the lack of supervision of the employees who come in contact with the milk. The tuberculin testing clause under the requirements for inspected milk is of questionable value as, so far as known, no subsequent examinations are demanded, thereby reducing the protection to the consumer which retesting may afford, and which is required at certified milk dairies. It is a fact that this milk, as sold in Boston, is reasonably clean, is produced under commendable conditions, and is well within the bacterial standard of 100,000 to the cubic centimeter. A part of this product is pasteurized in bottles before delivery to the consumer. In the providing of clean milk the authorities have assisted and encouraged dealers, perhaps to an unwarranted degree, considering the small demand and the consequent limited financial return. The dealers have made arrangements so that almost unlimited supplies of this commodity could be provided if necessary. Under present conditions however, there is a surplus coming to Boston daily, and because there is no market, it is mixed with the common grade of milk. Are we not to be condemned as citizens for this condition and for the further fact that only 3.67 per cent. of the milk consumed in Boston is of this type, and that the demand for certified milk is equal to only 0.88 per cent. of the total supply? The decrease in the number of quarts used daily of this reasonably clean milk from 1911 to 1912 was caused by some of the small dealers abandoning its sale and by one firm losing a large percentage of its business through increasing the price of this product from ten cents to twelve cents per quart, in order to obtain a living profit. These data afford conclusive proof that health authorities and certified milk commissions are endeavoring to provide higher grades of milk than the public is demanding or is willing to buy, that most consumers are not now desirous of procuring such milk where an increased cost is involved, and that some of those who are interested in the subject, want the extra improvement cost to be borne by the producer or dealer. It is certain that this state of affairs, combined with the present inertia of most consumers will never result in procuring abundant supplies of clean milk for this or any other locality.

Who is chiefly responsible for this condition? To my mind the physician who daily has the opportunity, possessed by no other class of individuals, of presenting to consumers the advantages which follow the use of clean milk, and the disadvantages likely to be attendant upon the employment of milk of the opposite type. The effort to make the clean milk movement a success can never be attained without the active support and aid of the members of your profession. You are essential to its being placed upon a firm foundation, and the subject is one worthy of keenest interest. Let it be known that in Boston there is a market for all of the clean milk which comes within its borders.

You are asked and urged to assist in this propaganda by encouraging at every opportunity the employment of clean milk. If you will do your part, the authorities and the medical milk commissions will see that the demand is supplied and that the product is properly safeguarded.

II.

THE PRODUCTION OF CERTIFIED MILK.

BY J. A. FOORD,

Head of Division of Agriculture, Massachusetts Agricultural College, Amherst, Mass.

I WILL describe briefly just what we do at the Massachusetts Agricultural College in the production of certified milk. For the sake of simplicity I am going to take it for granted that you know nothing about it, and will apologize once for all for taking this view point. Of course it will be necessary to omit a good many things, but I will try to tell you some of what we consider the most important factors.

First, as to stables. It might be well to discuss briefly the kind of stables that are desirable for the production of certified milk. In building a stable of this kind, the object is to furnish one that is easy to keep clean and sanitary, and in which dust can be eliminated as much as possible. The floor should be non-absorbent, easily cleaned, not slippery, a non-conductor of heat, and durable. The wooden floor does not fulfill these conditions. The floor, it seems to me, should be on the ground, with no cellar under it. I am aware that it is not many years ago that the barn cellar for the storage of manure was advocated, but we know today that it is difficult to store manure so that there will not be considerable loss of the valuable element, nitrogen, and consequently it is better from the soil fertility standpoint to draw the manure directly to the fields and spread it than to allow it to accumulate in the barn cellars, from which the odor nearly always penetrates to the stable above. As to the kind of floor it is best to use, cement has been advocated and is undoubtedly the most sanitary. I do not like cement under the cattle, however, and for flooring the stalls, I think the best thing so far suggested or invented is the cork and asphalt brick. The gutter behind the cow should be narrow enough so that the animal will step over rather than into it, so that the feet and consequently the stalls are not unnecessarily soiled. This calls for a little deeper gutter, which does no particular harm. Now in regard to the ceiling, it should be tight, so that no dust will pass through it, smooth so that it may be easily cleaned; that is in building of wood sheathing the usual groove should be omitted and plain sheathing used. Cement or pulp plaster is a good material to use, because the former, especially, can be easily washed. It is desirable that the ceiling be of light color.

There should be plenty of windows, with the light well distributed, that is, on three sides of the building, if possible. At least four square feet of window space, and better, six square feet of window space per animal is desirable. The subject of ventilation is an important one, but time does not permit my taking it up now. It may be said briefly that the intakes should be many and of small size, and if possible arranged so that the cold air will come in near the ceiling, and that the outlets should be few in number and large.

There is another question that is often discussed, and that is whether it is desirable to have hay over the cattle or not. I feel that some boards of health have gone to extremes in this matter, and that there is no logical reason why hay should not be stored over the cattle, provided, that there is (1) a tight ceiling; (2) a good ventilating system, one that works; (3) a room outside the stable where hay can be thrown down, so that hay is never thrown from the mow directly into the stable, but is drawn in on trucks; (4) plenty of windows so that light and air are admitted on both sides; and (5) that reasonable sanitary conditions are maintained in the stable itself. It is certainly less expensive in building a barn to put the hay above it than it is to build a separate stable. In the whole construction of the stable, smooth inside surfaces and rounded corners with the possibility of washing the whole interior surface, is desired. At this point, I might mention one of the certified milk producer's problems; that is, how to pay the interest on the investment on such a stable at the present prices of certified milk.

Second, the cattle. The cattle should be healthy and free from tuberculosis, and here again comes another problem, too large a one for us to consider tonight. I might say, however, that I believe the question of tuberculosis in cattle will never be settled until there is a more widespread knowledge of the subject, and a belief in the fact among our farmers that it is more profitable to keep a herd that is free from tuberculosis than one that is not. You can rest assured, however, that the Medical Milk Commission of Boston is using every precaution to see that the herds certified by it are free from this disease. The cows should also be free from garget or any other udder trouble. It is desirable also that a large proportion of the herd should not be in an advanced period of lactation, because we usually find that the milk from cows in the latter part of the lactation period is apt to contain a large number of bacteria per cubic centimeter. The cattle are under the supervision of the veterinarian of the Medical Milk Commission, who visits the herd without previous notice, whenever he wishes to.

The food fed to the cattle must be healthful and of such a character that it will not injure the flavor of the milk. Extreme care is necessary in making changes from one kind of feed to another, in order to avoid any injurious effect when the milk is fed to children and invalids.

Absolute cleanliness is of course an essential in the care of the cattle, and I might give you very briefly the routine followed in our stable morning and afternoon. The stables are first cleaned, the manure being taken out by means of cars on an overhead track. Small chains are then hooked across under the cows' neck to prevent their lying down. They are then groomed with the currycomb and brush, and this is followed by washing the udder, flanks, tail, and under parts, with soap and water, and drying these again so that there will be no free water. I might add in this connection that care is necessary in a certified milk stable to prevent dust entering from the barn-yard or fields especially on windy days. This may seem like a stretch of the imagination, but I can assure you that the bacteria count of the milk is influenced in this way.

In most certified milk dairies the cows are milked by hand, with clean dry hands, which the men are required to wash after milking one cow and before going to the next. Artificial milkers are being tried out and used somewhat, but in the past it has been difficult to get milk with as low a bacterial content when artificial milkers were used as when the milking was done by hand. I think, however, this disadvantage will eventually be overcome. I have been told recently by more than one large dairyman that it was doubtful economy to install a milking machine for less than sixty cows. In milking by hand it is desirable, in fact almost essential, that covered pails with small openings be used. Each cow's milk is carried directly to the dairy as soon as it is milked.

Third, the dairy. Most certified milk dairies are separated from the stable by what is usually called a cut-off, that is, a small room through which the air is allowed to circulate to prevent the odor of the stable from passing to the dairy. In our own dairy we use this device, and turn the milk into a strainer, from which it passes through a small pipe in the cement wall into the bottling room. The bottling room is kept for that purpose only. A cloth screen is put into one of the windows so as to furnish air as free from dust as possible, and everything that enters the room enters it through a double-end sterilizer, one end of which is in the washroom, and the other in the bottling-room, so that everything enters the room through this sterilizer, except the men employed; we would pass them through too, but they object. The wash-room has the usual appliances for thorough washing, cleaning, and sterilizing of the utensils. We aim to sterilize with live steam every day all utensils that come in contact with the milk. At the present time certified milk is almost universally shipped in glass bottles. I hope someone will invent before very long a single service milk bottle or container that will be satisfactory; until then we must, I suppose, continue to use

glass. I might add that with reference to our own dairy the bottles are thoroughly washed in Boston before being returned to us, but that we take nothing for granted and the operation is repeated. When put into the sterilizer they are inverted and are kept inverted until they are put upon the rack for filling.

Fourth, the milk. The milk is cooled, bottled, and packed in cracked ice within thirty minutes of the time it leaves the cow. The dairyman inspects the bottles as they are put into the boxes for icing. At this point comes rather a difficult problem for the producer, and that it to fulfill the requirements of the Commission and keep the milk between 45 and 32 degrees Fahrenheit until delivered, when the weather conditions cause the surrounding air to vary in temperature frm below zero to 90 degrees Fahrenheit. It is almost exasperating to a producer when he has used every precaution, almost regardless of expense, to keep milk within this temperature, only to see it left on the consumer's door-step for a couple of hours because someone is too thoughtless to take it in. I am aware that the early delivery of milk which is common in Boston does not make this problem any easier to solve. Agents of the Medical Milk Commission can and do take milk for examination from the delivery wagons, without previous notice; I think practically all analyses are made from milk taken in this way. Now as to delivery, undoubtedly the delivery of certified milk can be done cheaper by a large contractor than by any other means, because the consumers are so widely scattered. With reference to delivery, I might add that while the Commission requires certified milk to be delivered within 48 hours of the time of milking, I do not think consumers need to worry if it is twelve hours older, provided it has been kept below 45 degrees. We have kept certified milk for 20 days by simply keeping it cool, and at the end of that time the bacteria count was only 1100, and the milk was apparently normal, except for the fact that the cream had separated and was somewhat thick, but perfectly sweet.

Fifth, the men. The men are all under the supervision of a local physician, who reports directly to the Medical Milk Commission certifying the milk. More than one Boston physician has asked me about the examining physician's methods, and I might say in reply that in addition to examination of the men at any time that he sees fit and without previous notification to us, he keeps a list of their living and boarding places, and this with the daily report of the board of health keeps him well informed as to the possibility of infection. As a matter of fact, in Amherst he is the local health officer. In this connection comes another one of the certified milk producer's serious problems; all these methods that I have described have to be carried out by men who are just human and who cannot be paid big wages if the business is to be a financial success. I want to call your attention to a statement by Dr. Charles E. North, who had charge of an experiment by the New York Milk Committee, at Homer, N. Y. As you probably know, Dr. North was a physician who began by producing certified milk on his own farm. He says, "there is no one factor in milk production nearly equal in importance to the dairy farmer himself. There is no question in my mind that the man himself is far more important than his equipment, and that a good man can produce good milk amid unfavorable surroundings while a bad man cannot produce good milk under any circumstances." Men in certified milk dairies wear clean white suits while milking.

Sixth, the consumer. The consumer is certainly not educated as to the food value of milk or as to the desirability of clean milk for children. The consumer is often ignorant also as to the proper care of milk after it has been delivered. As already stated, milk is frequently left on the doorstep for hours, or is left around in the kitchen without being put in the refrigerator, and even when it is put away, we know that in many house refrigerators the temperature is very little if any below 50 degrees Fahrenheit.

Seventh, the commission. I believe the members of the Medical Milk Commission of Boston are most careful and conscientious in their work, and are doing all they can to protect the consumer. The recent outbreak of scarlet fever in Amherst is an example. The teamster who took the boxes of bottled milk from our dairy to the early morning train returned to the barn with his team saying that he was not very well, and went to his room. Before noon we had called the local physician representing the Commission and he diagnosed scarlet fever. The Commission and the Boston contractor were both notified by telephone and it was decided to pasteurize the milk, which had already reached Boston, in the bottle, as the man who had developed the disease had only handled the outside of the milk cases which are of tight wooden construction with tight wooden covers. Although the National Association of Medical Milk Commission provides for pasteurization under such circumstances, your Commission withdrew the certification of our farm until they were assured by their Amherst representative that no further cases were likely to develop among the men employed at the farm. By this suspension of delivery we lost the difference between the butter fat value and the certified milk value of the milk, amounting to $286.00 to date, and in addition 22% of our trade, which it has taken nearly five years to build up; and our milk was perfectly safe all the time. I do not criticize the Commission, but mention this to show you the care they are taking to have their certification mean something, and also the risks the producer has to take.

Eighth, the producer. And now coming to the last factor, the producer. He is working 365 days in the year and 366 in leap year, and if, after paying expenses, he pays 6% on his in-

vestment, he is doing more than we have been able to do thus far.

Gentlemen, this most healthful and carefully guarded food product is available for your use or that of your patients, and yet Prof. Jordan has just told us that only eighty-eight one hundredths of one per cent. of the milk coming into Boston is certified.

III.

THE MEDICAL MILK COMMISSION OF BOSTON.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON.

By vote of the Suffolk District Medical Society in the spring of 1906, Dr. Post was directed to appoint five members to form the "Milk Commission of the Suffolk District Medical Society." It was also voted that the members of this commission should serve without compensation; that they were to make such rules and regulations concerning certification as, in their discretion, they deemed proper; that they should make such arrangements to secure competent gratuitous veterinary, chemical and bacteriological service as might be available.

As a result of this vote the Commission in March, 1907, certified "The Warelands" dairy at Highland Lake, Norfolk, Mass., as meeting their requirments for certified milk. This dairy at that time put out about 200 quarts of milk daily. In March, 1908, a certificate was granted the Massachusetts Agricultural College at Amherst. The output from this dairy was 150 quarts daily. Neither of these farms had serious difficulty in living up to the requirements of the Commission. On October 1, 1908, the Cherry Hill Farm, under the management of the Gould Brothers, became certified, with an output of 1200 quarts daily. On this same date the Middlebrook Farm, at Dover, N. H., was also certified with an output of 36 quarts daily, which was later rapidly increased to between 200 and 300 quarts.

The Massachusetts Agricultural College milk was delivered by D. Whiting and Sons, and as the demand for certified milk increased H. P. Hood and Sons found it advisable to have a certified milk and made arrangements to deliver the Middlebrook Farm milk. These two firms are still continuing to deliver the milk from these farms. The Warelands and Cherry Hill Farm milk was delivered by their own teams.

For the first ten months of 1910 the Miles River Farm at Hamilton was certified, but the owner did not continue certification as his output was so small that the added expense was not justifiable.

Until July 1, 1911, the milk from these farms was certified by the Milk Commission of the Suffolk District Medical Society. By Chapter 506 of the Acts of 1911 of the State Legislature, a law was passed authorizing the incorporation of Medical Milk Commissions for the purpose of supervising the production of milk intended for sick room purposes, infant feeding, use in hospitals and for other purposes. Section 4 of this Act gives corporations organized under this Act power to enter into agreements in writing with any dairy-man for the production of milk under the supervision of such corporation and to prescribe in such agreements the conditions under which such milk shall be produced, provided these conditions shall not fall below the standards of purity and quality for certified milk as fixed by the American Association of Medical Milk Commissions and the standards fixed by the laws of the Commonwealth. Section 5 provides that the working methods of the corporations founded and the dairies producing milk under this Act are subject to investigation and scrutiny of the State Board of Health. Section 6 provides that any person offering as certified milk, milk which does not conform to the regulations prescribed by and bear the certification of a corporation organized under the provisions of this act is guilty of a misdeameanor and is liable to a fine not exceeding one hundred dollars.

Because of this Act the Milk Commission of the Suffolk District Medical Society went out of existence and the Medical Milk Commission of Boston, incorporated, took its place. The membership of the Commission remained the same, but we lost affiliation with the Medical Society, which we feel is a weak point in the incorporating Act. At some future date we hope to have this act so amended that the Commission becomes closely associated with the Medical Society.

When we were incorporated we entered into agreements at once to certify four dairies, namely, the Warelands, at Norfolk, Mass.; the Massachusetts Agricultural College, at Amherst, Mass.; Cherry Hill Farm, at Beverly; and the Middlebrook Farm, at Dover, N. H. These farms continued to be certified until the spring of 1912, when Cherry Hill Farm, under the management of the Gould Brothers, transferred their stock to their new farm at Essex, the Prospect Hill Farm, and the Cherry Hill Farm was discontinued. On May 15, 1912, we gave a certificate to the Home Farm of H. P. Hood and Sons, at Derry, N. H., and they have been putting out since then about thirty quarts daily, but this farm is capable of putting out a thousand quarts daily as soon as the demand arises.

Cherry Hill Farm during the summer of 1912 was taken over by another management and asked to be certified, but it was not until October 1 that the Commission found the milk fulfilled their requirements. A certificate was then granted. On October 15 this farm stopped the delivery of milk because of the expense involved in the delivering of the milk. It was a source of regret to the Commission that the manager of the farm gave up the production of certified milk for he had met all our suggestions, willingly and promptly.

Such in brief is the story of the farms certified by the Boston Medical Milk Commission. There are, besides these certified milks, three others coming into Boston, two certified by the Cambridge and one by the Cohasset Commission. On February 1 the Warelands sent into Boston approximately 275 quarts, Amherst 345, Middlebrook 366, Prospect Hill 660, Hoods at Derry 30, a total of 1700 quarts of certified milk a day.

The expenses of the Commission up to July 1, 1911, were borne by the Suffolk District Medical Society. From then to January 1, 1913, part of the money was raised by a tax of one mill per cap for each cap used, the deficit being paid by the Suffolk District Medical Society. After a year's trial of this method to raise the money necessary to certify the farms, it was found to be not only insufficient, but that it worked unfairly and, therefore, beginning on January 1, 1913, each farm agreed to pay the expenses it incurs necessary for the certification plus a tax of one-quarter of a mill per cap used in order to cover the necessary clerical work. By this scheme we hope in the future to be self supporting and not have to ask for any money from the district society.

Certified milk has been coming into Boston for six years, and it is astonishing to find how few physicians, to say nothing of the laity, fully understand what it means or the value it has. What certified milk is can best be shown by quoting from our contract, which each of the above farms have signed.

This contract is in substance the requirements recommended in May, 1912, by the American Association of Medical Milk Commissions for the production of certified milk:—

"The stables, dairy, and all other buildings of the farm shall be clean and well ventilated; proper care and cleanliness shall be observed in milking and in the care of the various utensils employed; the nature and quality of the food used and all other matters of a hygienic nature bearing on the health of the cows and the cleanliness of the milk shall be such as to meet the approval of a veterinarian appointed by the Commission. All animals of the herd shall be free from tuberculosis and all other diseases. The tuberculin test shall be applied to all animals at or shortly before admission to the herd and the entire herd shall be tested twice a year at approximately six months' intervals in a manner and by a person satisfactory to the Commission. All animals showing a positive reaction shall be removed immediately from the herd. No person who is suffering from any infectious or communicable disease or who has been exposed recently to such a disease shall be employed on the farm or in the handling of the milk. The milk shall be cooled to 45 degrees Fahrenheit within one hour after it is milked and shall be kept at a temperature below 45 degrees Fahrenheit until its delivery. The milk shall not be frozen and shall not be subjected to heat. The milk shall not contain more than 10,000 bacteria of any kind or kinds to the cubic centimeter, and shall be kept free from pus or pathogenic organisms and from all foreign substances. Unless otherwise designated, the milk shall contain not less than 3.5% nor more than 4.5% fat. Milk may contain more than 4.5% fat provided it is marked as containing more than 4.5% fat. The milk shall be put in glass bottles on the farm, under conditions satisfactory to the Commission and the bottles shall be sealed and labeled in a manner satisfactory to the Commission. The per cent. of fat in the milk may be stated on the bottle provided the per cent. of fat in the milk so labelled does not vary more than .50% in either direction from the stated per cent. or provided the per cent. of fat in the milk is not less than 4.5% of fat if it is labelled "more than 4.5% fat."

How are these conditions fulfilled and enforced?

First and above all, the Commission must be certain that the dairyman it certifies means to be honest and straightforward in his dealings. No matter what rules and regulations are laid down they are of no avail if the dairy be not conducted honestly. We fortunately have not met with any underhanded work—all of the farms have dealt honestly and openly with us. Should we find one acting otherwise, the certificate would at once be taken away, no matter how good the milk might be. The moment confidence in the producer is lost the value of the certificate goes.

Each farm is inspected once a month by the Commission's veterinarian and he reports the result of his findings in writing to the Commission. From October to June samples of milk from the delivery wagons are taken twice a month and from June to October once in a week for bacteriological examination. If, as a result of these bacterial examinations any count is found to be over 10,000 bacteria to the cubic centimeter, the farm is notified and another count taken at once. The certificate is not necessarily taken away on the first rise in the count. The source of the trouble is sought for. Generally it is quickly found and the count drops at once. If it is not found and the count is still up, the certificate is revoked and is not re-issued until the farm proves conclusively that it can keep the count consistently below 10,000.

We try to have all employees examined by physicians before they are allowed to go to work. Any sore throats are at once reported and the man is not allowed to go to work until there is no danger. The employers try to instill into the men a desire to obtain the lowest possible counts and to live up, not only to the letter of the regulations, but to their spirit.

The Commission freely admits that all the milk at all times has not had a bacterial count below 10,000. Mistakes and accidents will occur. If we lived up absolutely to the letter of the law no producers would go into the business of certified milk The Commission must steer a

middle course, the milk must be on the average well above the requirements of certified milk and that it is, but we must not be so rigid that when a single sample falls below the standard the certificate is revoked at once. Especially is this true when the producer shows every willingness to rectify the trouble. All of the farms have had trouble at times in living up to the requirements. With some the trouble was trivial; with others it was serious. At various times the certificate has been taken away from all but two. All have been warned of more or less trouble. It may be said here that physicians must teach their families who are using certified milk that the cap which seals the bottle is the only proof they can have that this milk is certified. The Commission obviously cannot notify each consumer when the certificate is revoked. If the Commissioner's cap is on the bottle and is untampered with, the consumer can with safety use the milk, but if the seal is tampered with or does not have the Commission's cap on the bottle then the consumer must reject it and demand what he asked for.

One word about inspected milk. Legally in Massachusetts there is no such milk. The word "inspected" is tacked on to caps and advertisements simply to catch the ever-to-be-fooled public. If you ask by whom is this milk inspected you get varying replies. We know of no medical society inspection of so-called "inspected" milk. The truth of the situation is that the inspection is done, whatever there is of it, by the milk dealer himself and the value of such inspections is so obvious that no further word is necessary.

Three examples will show the value of the certification. Microscopic examination of one specimen of milk showed increased numbers of leucocytes with a few chains of streptococci. A member of the Commission went at once to the farm and by microscopic examination of the milk from the individual cows located the source of the trouble in a single quarter of the udder of one cow which the herdsman of the farm had not found. This cow was at once removed from the herd and no trouble arose.

Again, the farm which has shown consistently the lowest bacterial count put out a milk which was very bitter to the taste and with a bad odor. This farm was telephoned to at once and the source of the trouble found and the cow which was giving this milk removed from the herd. The next shipment of milk was of the same excellent quality as before. What the cause of this bitter and foul smelling milk is dairymen do not know. It is not due to bacterial contamination because the count of the quart of milk I saw was 500,000 bacteria to the cubic centimeter. This bitter milk is a recognized source of trouble to dairymen. It is unfortunate that it occurs, but it can in no way be regarded as the dairyman's fault. The third instance of the value of the Commission was recently shown when an outbreak of scarlet fever occurred at the Amherst Agricultural College. One morning after the shipment of milk had been made to Boston, it was discovered that one of the farm workers had scarlet fever. Professor Foord telephoned to us of the situation and that milk which arrived in Boston in the afternoon was pasteurized at once and sent out with no comment on it because there was no time to have any slips printed saying the milk had been pasteurized. This was the last shipment of milk that came down from Amherst until the State Board of Health and our own physician notified us that the conditions at Amherst were satisfactory and that the milk could come without danger of contamination. Unquestionably it was a hardship to cut off this milk supply, but it was much better to cut off this supply entirely than to let it come into Boston and be delivered when there was the slightest question about the possibility of infection being present. The sales of certified milk have not come up to the expectations of the producers.

The increase is slow but steady, and we feel confident that if the profession at large appreciated more fully the safeguards and the value of certified milk they would urge their families to take it more often than they do.

IV.

DISCUSSION OF PAPERS OF PROFESSORS JORDAN AND FOORD AND OF DR. DE NORMANDIE.

BY JOHN LOVETT MORSE, M.D., BOSTON.

It is hardly necessary to remind you that the diarrheal diseases in infancy are due in large part to bacteria, that the bacteria enter in the food and that the food in which they enter is milk. The entrance of bacteria can be prevented in two ways: by the use of a pure, clean milk and by heating the milk. It is certain that the pasteurization of milk does not do the harm which it was at one time supposed to do. In fact, there is no evidence from the laboratory, animal experimentation or clinical, that the pasteurization of milk causes any disturbance of nutrition in infants. (Personally, however, and I think most pediatrists will agree with me, I prefer, if possible, to feed babies on pure, clean, raw milk than on pasteurized milk.) It seems to me that on the whole they do better. The only ways to get clean milk are to own your own cow, take care of it and milk it yourself, deliver it yourself, or to have the production and delivery of milk controlled by milk commissions. The former method is, of course, impracticable; the other method is practicable and most satisfactory. It is hardly necessary to remind an audience of Boston physicians of the dangers and importance of contagion through milk, because the epidemics of sore throat of the last two years are still fresh in their minds.

The number of babies and children infected with tuberculosis through milk is relatively small compared with the number infected

through the air. It is large enough, however, to be worthy of attention and, if possible, prevention. During this month I have seen, in consultation, three cases of abdominal tuberculosis in infants living under the best possible conditions and having the best possible care. The only common source of infection which could be gotten at was that they all had been taking the same milk. This milk came from one of the best dairies in Boston, but one which is not certified. It is impossible to know, therefore, whether the cows have been tested for tuberculosis, as they should have been, or not. There would be no question about it if the farm was under the control of a milk commission.

Everyone will admit the importance of accuracy in the preparation of modified milks for babies. It is impossible to obtain accuracy unless the milk used in the preparation of the food is of constant composition. It is hardly possible to get milk of a constant composition except by the use of certified milk.

It is not uncommon for people to get certified milk for their babies during the first year, then to give it up because of expense, feeling that after the first year the character of the milk supply is not of as much importance. This is wrong, because children during their second year are almost as easily infected as during their first year, and are relatively easily infected throughout early childhood. It is almost as important to have a pure milk for young children as for babies.

It is very evident from what has been already said to-night that the price of certified milk must be much greater than that of ordinary milk. It is well worth, however, the difference in price. People should be willing to give up some of their small luxuries in order to get certified milk for their babies.

I can only emphasize what has been said by previous speakers as to the lack of appreciation of physicians of the importance of pure milk. The small attendance here to-night shows their lack of appreciation. If the subject was some obscure surgical condition which few of those present would see except very infrequently and which not one in ten would be competent to operate upon, the room would be crowded. It seems to me that they should be more interested in procuring pure milk for their own children and for their patients whom they see daily than in an obscure surgical condition. Further evidence of the lack of interest of the physicians in this subject is the fact that a certain milk dealer recently sent around a circular throughout the Back Bay stating that certain physicians, whose names were given, used his milk and recommended it. Many of these physicians are members of this society. As a matter of fact, the conditions at the farm in question are such that it could not, by any possibility, be certified by a milk commission.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY S. B. WOLBACH, M.D., BOSTON,
Assistant Professor of Bacteriology, Harvard Medical School.

(*Concluded from page 586.*)

INFECTIOUS DISEASES (continued):
- Brill's Disease.
- Malaria.
- Scarlet Fever.
- Sporotrichosis.
- Leprosy.
- Epidemic Streptococcus Sore Throat.
- Pertussis.

NUTRITIONAL DISEASES:
- Beriberi.
- Pellagra.
- Scurvy.

MISCELLANEOUS:
- Brain Lesions Produced by Electricity.

BRILL'S DISEASE AND TYPHUS FEVER.

ANDERSON AND GOLDBERGER, of the Public Health and Marine Hospital Service (*Public Health Report*, No. 71, 1912) have shown that Brill's disease is identical with typhus fever. They were able to do this through the possibility of infecting monkeys from the blood of cases of Brill's disease, and proving that these monkeys, after recovery, were immune to virulent blood from Mexican typhus fever. Similarly, monkeys which had recovered from Mexican typhus fever were found to be immune to Brill's disease. This work demonstrates that typhus fever has been present in New York City and in other large cities of the United States for many years. A recent report by Roger I. Lee, in the BOSTON MEDICAL AND SURGICAL JOURNAL, gives the incidence of this disease at the Massachusetts General Hospital, and shows that it is by no means very rare. The absence of epidemics is accounted for by the fact that typhus fever is transmitted through an intermediate host, the body louse. In this country there is no great opportunity for transference of infected lice from one individual to another.

MALARIA.

The cultivation of the malarial parasite by Bass and Foster is reported in the *Journal of Experimental Medicine*, Vol. 26, No. 4. The authors have cultivated two types of parasites; the plasmodium vivax and the plasmodium falciparum. So far but two confirmatory reports have been made, that by Thompson and McLellan (*Annals of Tropical Medicine and Parasitology*, Vol. 6, No. 4) and that by Surgeon C. H. Lavinder, United States Public Health Service (*Journal American Medical Association*, Vol. 60, No. 1). Thompson and McLellan and Lavinder cultivated the plasmodium falciparum. A note by Major Sir Ronald Ross, which is appended to Thompson and McLellan's paper, confirms the evidence of cultivation both in specimens sent by Bass from New Orleans and by Thompson and

McLellan in Liverpool. The method employed is to withdraw blood from a vein of a patient, and to add 1-10 of a c.c. of a 50% solution of dextrose for each 10 c.c. of blood obtained. The blood is then quickly defibrinated and is placed in the incubator. The parasites live and develop at the top of the column of precipitated red cells. If it is wished to maintain the parasites for more than one generation, it is necessary to transfer them to blood from which the leucocytes have been removed by centrifugalization. The plasmodium grows only within the red cells. If the leucocytes are not removed from the blood, they quickly destroy the parasites.

This work is of great importance, as hitherto all attempts to cultivate malarial parasites have failed, and it is quite possible that the study of the cultures, which represent, of course, the asexual cycle, will be of aid in the differentiation of species of malarial organisms.

SCARLET FEVER.

"Inclusions in Leucocytes in Cases of Scarlet Fever," first reported by Döhle in 1911 and again in 1912 (*Cent. f. Bak.*, Abt. 1, Orig., Bd. 65, Heft 1-3), have attracted a great deal of attention all over the world. These inclusions are minute bodies which stain blue by Giemsa's and Wright's stain. They are most easily demonstrated by ordinary alkaline methylene blue stains. In Döhle's second paper he described a spirochete in a leucocyte, which he believed to be connected with the presence of these bodies, and possibly the cause of scarlet fever. A perfect flood of papers has appeared on this subject. The unanimous conclusion is that these bodies, while more common in scarlet fever than any other disease, are not pathognomonic of scarlet fever, and naturally not parasitic. The finding of spirochetes in scarlet fever has not been confirmed.

SPOROTRICHOSIS IN THE UNITED STATES.

Ruediger (*Journal of Infectious Diseases*, Vol. ii, No. 2) has collected and summarized cases from the United States. Ten years ago, infection of the human with sporothrix fungus was so rare as to be a pathological curiosity. At that time only three cases had been discovered in America, and no cases had been recognized in any other country. In this respect, the history of sporothrix infections reminds one of the history of blastomycosis and coccidioidal granuloma, which was first discovered in America, and whose existence was for a long time denied by European workers, although recently accepted. During the last six years more than fifty cases of sporotrichosis have been reported from France, a few in Germany and 44 cases from different parts of the United States. Ruediger brings additional cases, making a total of 57 cases observed in the United States. The distribution of these cases are as follows: Missouri 3, Kansas 12, Iowa 1, Nebraska 5, South Dakota 3, North Dakota 23, Minnesota 1, Illinois 3, Pennsylvania 1, New York 2 and California 1. Ruediger draws attention to the fact that five-sixths of the total of 57 cases occurred in the Missouri valley. The disease resembles somewhat the disease in horses. There is usually a primary ulcer, followed by subcutaneous nodules along the course of the lymphatics and enlargement of the lymph nodes. The subcutaneous nodules may break down and form abscesses and ulcers. The lesion is of the granulomatous type, closely resembling tuberculosis. The presence of the parasite in endothelial leucocytes and giant cells makes the diagnosis easy. The cases are rapidly cured with potassium iodide.

LEPROSY.

In spite of numerous publications during 1911 and 1912 on the cultivation of the leprosy bacillus, our actual knowledge of the bacteriology of leprosy has not been materially advanced. This statement is made in view of the fact that since 1903 there have been 19 publications dealing with the cultivation of the leprosy bacillus, and of these 19 reported isolations, hardly two agree.

Duval and Wellman (*Journal of Infectious Diseases*, Vol. ii) report two different cultures, both occurring with considerable constancy in leper tissues. One is a chromogenic organism with marked morphological variations; the other is not chromogenic and is more uniformly acid-fast. Lesions are said to have been produced in Japanese waltzing mice and possibly in monkeys.

Liston and Williams (*Scientific Memoirs*, India, No. 51) report the finding of a chromogenic organism which differs from that of Duval and Wellman. The organism is variable in its behavior to acids after staining with carbol fuchsin. It shows marked pleomorphinism in cultures, varying from short bacilli to streptothrix forms.

Reenstjerna (*Deutsches Med. Woch.*, 1912, No. 38) reports the cultivation of an acid fast, extremely pleomorphic bacillus, pathogenic for monkeys, and Machow (*Cent. f. Bak*, No. 67, 1913) claims to have cultivated an acid-fast organism which does not produce colored colonies, although the cultures sometimes show coccoid and streptothrix-like forms. This culture is said to be pathogenic for mice.

The publications during 1912 show the same lack of uniformity in results that previous years have brought forth, and the whole question of the bacteriology of leprosy remains decidedly confused.

EPIDEMIC STREPTOCOCCUS SORE THROAT.

The epidemics of sore throat which occurred during 1911 in Boston, Chicago and Baltimore have been reported in considerable detail by C. E. A. Winslow (*Journal of Infectious Diseases*, Vol. 10, p. 113); Capps and Miller (*Journal of the American Medical Association*, Vol. 58, p. 1848); Hamburger (*Bulletin of the Johns*

Hopkins Hospital, Vol. 24, No. 263). Rosenow (*Journal of Infectious Diseases*, Vol. 11, p. 338) has worked on the bacteriology of the Chicago epidemic. Winslow in his paper summarizes the reports of twelve outbreaks of a similar disease in Great Britain. Hamburger gives some details from the report of an outbreak in Norway, and the study of eighteen epidemics in Great Britain, made by Savage—"Milk and the Public Health, 1912."

There is no reasonable doubt that these epidemics, occurring in different parts of the world, are of the same disease; a severe type of sore throat, with or without tonsillitis, and apt to be followed by severe, often fatal, metastatic suppurative processes. Suppuration of the cervical lymph nodes is particularly common. Other frequent complications are multiple arthritis, otitis media, phlegmon and peritonitis. It is thoroughly proved by the studies made in America and Great Britain that the disease is distributed by milk. The type of streptococcus, wherever studied, in Boston, Chicago and Baltimore, shows the same peculiarities which distinguish it from other streptococci. The colonies are larger and more watery in appearance. This is due to the formation of abundant capsular material, and the capsules may be demonstrated by ordinary stains. It acidifies and coagulates milk; inulin is not fermented, and the organisms are not dissolved by bile salts. It is much less hemolytic than streptococcus pyogenes, either in blood agar plates, or in fatal cases of septicemia. Long cultivation on artificial media causes the loss of some of these characteristics, namely, the appearance of the colonies and capsule production.

Rosenow has come to the conclusion that it is impossible to determine whether the streptococci of these epidemics are of exclusively bovine or human origin. He has shown that they may be of both, and that butter and cream may contain virulent streptococci, even when the milk has been drawn from cows under aseptic conditions. He also believes that streptococcus pyogenes grown in unheated milk assumes the characteristics of the cultures from these throat epidemics, and that these characteristics may be accentuated by passage through animals.

Considering the confused state of our knowledge regarding the differentiation of streptococci into strains or species, the only points worth emphasizing in regard to cultures from these throat epidemics is that they are at least fairly characteristic when first isolated, and that clinically they behave differently from the ordinary streptococcus pyogenes infections, and that the milk-borne streptococcus sore throat is essentially a clinical entity.

PERTUSSIS.

Bordet and Gengou in 1906 reported the discovery of a bacillus in whooping cough, which they were able to isolate in pure cultures from sputum. This bacillus is an extremely minute one, and has some points of similarity with the bacillus influenza. Their evidence for assigning it as the causative factor in pertussis is based upon its presence in the sputum and the complement deviation test which the serum of the patients give, the antigen, of course, being a specific one made from the bacillus.

Mallory and Horner (*Journal of Medical Research*, Vol. 27, No. 2, November, 1912) report the discovery of the characteristic lesion of whooping cough, and the locus of the bacillus. The bacilli occur in large numbers between the cilia of the epithelial cells lining the trachea and bronchi, and possibly the nose. They believe that the action of the organism is largely mechanical, and that by its presence in large numbers, it interferes with the normal movements of the cilia. The tissue reaction is very slight, and consists of an infiltration of the submucosa with lymphocytes, including plasma cells, and a moderate degree of inflammation of the epithelium, evidenced by invasion with polymorphonuclear leucocytes. They have been able in subsequent work to reproduce the same lesion in dogs and monkeys. This piece of work completes the chain of evidence necessary to establish the bacillus of Bordet and Gengou, as the cause of whooping cough.

BERIBERI.

A number of papers have appeared in the last few years, showing that beriberi could be experimentally produced in birds, fowls and pigeons by feeding with polished rice; at least a paralysis is produced due to peripheral nerve lesions, similar to those found in human beriberi, and cures could be produced by the addition of substances obtained from the rice polishings. Experiments on man have been done by a number of investigators in a number of different places, but these experiments are open to criticism in that they were conducted in regions where beriberi is endemic, so that two theories have been in force regarding the etiology: one that beriberi is due to the lack of certain substances in the diet; the other that deficiencies in diet only predispose, and the real cause remains unknown, and possibly is of infectious origin.

Strong and his associates in Manila (*Philippine Journal of Science*, Section B. Vol. 7, August, 1912, No. 4) have greatly extended the knowledge of beriberi, and confirmed the results of animal experimentation on the human. These experiments were carried out in Bilibid Prison, the subjects were volunteers, and were prisoners under sentence of death. The conditions were practically ideal, being conducted in a region free from beriberi, and protected against sources of infection, granting that these existed. They could find no evidence that beriberi is an infectious disease. On the other hand, they were able to produce the disease in individuals fed with special diet, while the control individuals, although intimately associated with the others,

did not contract the disease. A special diet formed the basis of the meals for all the subjects of the experiments, and included such food as bread, coffee, sugar, bacon, onions, lard and bananas. Four groups were formed, which were fed as follows. Group 1, white rice and extract of rice polishings and special diet; Group 2, white rice and special diet; Group 3, red rice and special diet; Group 4, white rice and special diet.

It is inadvisable to go into the details of the experiment, but the results show conclusively that beriberi develops because of the absence of some substance or substances in the diet. Such substances are evidently present in red rice, rice polishings and in the alcoholic extracts of rice polishings. The rigid isolation of the prisoners undergoing the test would seem to exclude the possibility of the introduction of an infectious agent through any other individual, or by the introduction of any article. These experiments of Strong and his associates are of great importance because they show that even with the diet containing all the physiological requirements, beriberi may result, owing to lack of certain unknown substances.

In experiments on fowls, Vedder (*Philippine Journal of Science*, Section B, Vol. 7, August, 1912, No. 4) found that fowls develop a polyneuritis when fed on a diet containing polished rice, cotton-seed oil, egg albumin, sugar, salt, magnesium phosphate, potassium phosphate and asparagin. Neuritis could be prevented by the addition of unpolished rice to the diet. A series of experiments have shown that the neuritis-preventing substance is not volatile, but is destroyed by heat; that it is not an inorganic salt, fat, proteid or alkaloid. It is probable that it is an organic base.

It is thus seen that the substances which prevent polyneuritis or experimental beriberi in fowls are probably similar in nature to those which prevent experimental scurvy in animals.

Funk ("Etiology of Deficiency Diseases," *Journal of State Medicine*, Vol. 20, No. 6) has isolated a crystalline substance, which he calls beriberi vitamine, and which he believes to be the active principle of the protective substance found in rice polishing. This substance, which has the formula $C_{17}H_{21}N_3O_7$, has a curative action for the experimental beriberi or polyneuritis in birds. He is inclined to think that vitamine is necessary for the metabolism of nervous tissue. The lack of vitamine in food stuff forces the animal to get this substance from its own tissue, the result being an enormous loss of weight, after which the available stock begins to be scarce. There is a consequent breaking down of the nervous tissues, with the result that nervous symptoms, such as are seen in beriberi, manifest themselves.

SCURVY.

The last year has seen material advance in our knowledge of scurvy. Baumann and Howard (*Archives of Internal Medicine*, Vol. 9, No. 6) report the first accurate study of the metabolism of scurvy. They do not attempt any general conclusions from the study of their one case, but their findings are of great interest. They found that the loss of the various food constituents through the feces was less when fruit juice was added to the diet. The total sulphur metabolism was abnormal throughout the experiment, the quantity eliminated being in excess of that ingested. Chlorine and sodium were retained during the fruit juice period, but were excreted in excess of the intake during the preliminary period. More potassium, calcium and magnesium were retained during the fruit juice period than during the preliminary period.

The experimental production of scurvy in animals reported during 1912 opens up, of course, great possibilities for the future investigation of scurvy.

Holst and Frölich (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found that they could produce scurvy in guinea-pigs by feeding them exclusively with grain or bread. They produced the characteristic lesions of scurvy: the loosening of the teeth; hemorrhages into the gums and joints; loosening of the epiphyses and changes in the bone marrow. Guinea-pigs that were fed exclusively with cabbage, carrots and dandelions did not show these changes, even though they lost greatly in weight, thus showing that scorbutus is not due to simple inanition. The animals which developed scorbutus could be cured by feeding with a number of vegetables. The anti-scorbutic power of certain vegetables was diminished or destroyed by long drying or cooking, but the juice of acid fruits retained their anti-scorbutic power even after heating.

Fürst (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found that feeding guinea-pigs exclusively with plant seeds would produce scorbutus, though not so easily and regularly as with exclusive grain feeding. Plant seeds that produce scurvy would acquire anti-scorbutic properties when infected with fungi. His attempts to identify the anti-scorbutic powers with specific substances, as fat, albumin, carbohydrates, cellulose, salt and enzymes failed.

Frölich (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found he could produce scorbutus in guinea-pigs by exclusive feeding with raw or cooked milk, although not so perfectly as by exclusive grain feeding. When fed with oats and raw milk, they did not develop scurvy; when fed with oats and cooked milk they did.

From these papers we may infer that the anti-scorbutic property of a food stuff depends on a substance destroyed or modified, to a large extent at least, by heat. The nature of the anti-scorbutic substance is unknown. That profound changes in metabolism in man have been demonstrated, and that the possibility of isolating the substances, the lack of which produce these changes, seems assured, offers reasonable ground for some interesting speculation.

PELLAGRA.

Sporadic cases of pellagra have been reported in many of the northern states in this country, and it seems that with greater familiarity with the disease, the total number of cases recorded from different parts of our country, is rapidly increasing.

Surgeon C. H. Lavinder (*United States Public Health Report*, Vol. 20, No. 50) has made a systematic attempt to collect statistical information relative to pellagra in the United States. A peculiarity of the disease here is a comparatively large number of cases occurring in people of easy circumstances. As in Italy, it is found that there is constantly but one case in any house or family. The author considers that pellegra during the last five or six years has affected no less than thirty thousand individuals, and that the matter has reached the dignity of a public health question of national importance.

A very extensive report of the Pellagra Commission of the State of Illinois has appeared. It is quite impossible to make a fair review of this report. Some of the salient points, however, are that the disease is essentially similar to that of Europe and Egypt. There are some slight differences in the distribution of the skin lesions. The lesions of the central nervous system in general are similar to those described by Adolph Meyer, under the name of central neuritis. The pathology consists of changes such as the axonal reaction and chromolysis in the Betz cells of the motor cortex, and of the larger pyramidal cells in the praecentral convolutions, and in the cells of the nuclei in the cerebellum, pons, medulla and cord, as well as posterior root and sympathetic ganglia. In some cases there is more or less overgrowth of neuroglia along blood vessels and around nerve cells. These lesions are interpreted as being simply the reaction upon the part of nervous tissue to the general effect of a deleterious substance, occurring in the disease, and are in no way specific for pellagra. Other lesions are slight inflammatory reactions in the connective tissue structures of the liver, intestinal ulcerations and secondary kidney lesions. The skin lesions pathologically give the general picture of angio-neurotic processes, and resemble to a marked degree the lesions found in erythema multiforme. Attempts to obtain a specific reaction in pellagra cases have failed. Cutaneous extracts of maize and complement fixation experiments have given negative results Attempts to produce pellagra in healthy individuals by a corn diet has failed in the hands of this Commission; likewise attempts to transmit pellagra to monkeys and other animals, by feeding and inoculation experiments, have failed. The general conclusions are that pellagra is a disease due to infection with a living micro-organism of unknown nature, and a possible location for this infection is in the intestinal tract. Deficient animal protein in the diet may constitute a predisposing factor in the disease. The Commission was not able to identify the nature of the association of the intestinal bacteria and protozoa investigated in a rather exhaustive series of experiments, with the disease.

Attempts made by Anderson and Goldberger and C. H. Lavinder (*Public Health Report*, Vol. 26, No. 26) to transmit pellagra to monkeys by injection of blood and spinal fluid and nervous tissue from pellagrins have failed.

Devoto (*Wiener Klin. Woch.*, Vol. 63, No. 1) says that in eight Italian provinces there has been a diminution since 1889 of 75% of pellagrous individuals. This diminution he claims is due to the lessening consumption of maize, brought about by edicts prohibiting the use of bad maize, and to improvement in economic conditions.

In spite of the voluminous literature of pellagra, definite conclusions as to the etiology are impossible. It is even difficult to form an opinion as to the value of the evidence for and against the infectious theory. The pathology of the disease throws very little light upon the nature of the underlying or causative processes. Such evidence that we have points to a similarity with certain nutritional disorders, such as buckwheat poisoning, beriberi and scurvy. In spite of these factors, however, we must remember that the infectious theory has many supporters, and among them, the Illinois Commission.

BRAIN LESIONS PRODUCED BY ELECTRICITY, AS OBSERVED AFTER LEGAL ELECTROCUTION.

The finding of constant and characteristic lesions in the brain, after death by electrocution, is of interest. Spitzka and Radash (*American Journal of Medical Sciences*, Vol. 144, No. 3) had an opportunity to study five brains which were preserved in formaline, shortly after death by electrocution. Peculiar areas, which gave a vacuolated appearance to the sections, were found in all. These areas, which are unlike anything seen in any other condition, ranged in diameter from 25 to 300 microns. They consist of two parts, a central rarefied and an outer condensed zone. The most characteristic contain a small blood vessel, surrounded by a delicate meshed reticulum, representing the central four-fifths of the area, and a condensed peripheral zone. The explanation of these areas can only be guessed. The bead-like vacuoles along the vessels and the condensed peripheral zone seem to show that the sudden liberation of gas, due to electrolysis, best explains their origin. Spitzka and Radash note that similar lesions have been experimentally produced by Sir Victor Horsley and R. H. Clarke. It is quite probable that these lesions will have considerable forensic importance.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, February 5, 1913, At 8 P.M.

The President, Dr. James C. Wilson, in the chair.

A PECULIAR FORM OF BRONCHOPNEUMONIA OF LOBAR DISTRIBUTION.

By Dr. David Riesman.

THYMUS DEATH IN THE NEWBORN, WITH REPORT OF A CASE.

Edward P. Davis, M.D.: The patient, Mrs. F. C., applied for treatment at the Wharton Street Maternity Dispensary of the Jefferson Hospital. She was pregnant, near term, and had had irregular bleeding for several days. She was delivered promptly by Cesarean section and her convalescence was uninterrupted. The child did well for 24 hours but died in spasm with dyspnea. During the life of the infant its neck and thoracic region presented nothing abnormal. Recent studies in relationships existing between the placenta and the thyroid gland suggest that the large thymus in the newborn must share in various disturbed conditions of maternal and fetal metabolism. In the case reported it is possible that the mother's hemorrhage had altered the condition of the fetal blood and in consequence produced alteration in the size and condition of the thymus. That the gland was enlarged before delivery is shown from the fact that the fetus was observed to make inspiratory movements of an unusual character before the membranes were opened. Evidently the disturbance of eventrating the uterus and compressing the lower segment to control hemorrhage was sufficient to influence the fetus. It is difficult in the present state of our knowledge to suggest measurements for preventing thymus death. Attention to the mother's hygiene during pregnancy is certainly demanded. Delivery by Cesarean section exposes the child to the least possible mechanical disturbance, and in this case no prolonged or vigorous efforts were made to establish respiration. A further study of the thymus from the standpoint of toxins and sera may throw light on this obscure condition.

DISCUSSION.

Dr. J. P. Crozer Griffith: I was glad to hear the speakers tonight admit the lack of positive knowledge by the profession regarding the strange condition under discussion. The term "thymus death" is rather an unfortunate one because it does not always have the same meaning. There is undoubtedly proven to exist a death by pressure of the thymus gland upon the trachea. The majority of so-called thymus deaths have been *sudden* deaths. I believe with others that such deaths are cardiac deaths. There is no anatomical proof of the occurrence of sudden congestion. The most generally accepted theory for these cases of sudden death is that the condition is a neurosis, toxic, perhaps, in origin, and that for some unknown cause, varying with the case, there is a sudden arrest of the heart's action.

MORS THYMICA; MORBID ANATOMY AND PATHOGENESIS (ILLUSTRATED).

Dr. William M. L. Coplin: We are very much in doubt regarding the changes that occur in the thymus body. One is impressed with the exceedingly varied morphology of the organ. We are in a field of doubt regarding embryology, histology and function. The frequent association of the enlargement of the organ with sudden death is marked.

MYOCARDIAL HYDROTHORAX.

Dr. James M. Anders: The association of cardiac disease and unilateral hydrothorax is not rare. In 13 out of my 16 cases of hydrothorax due to myocardial changes, the condition was wholly on the right side throughout. In five of the 16 cases, clear and convincing evidence of well-pronounced chronic interstitial nephritis was present. In nine cases the cardiac incompetency was caused by chronic myocarditis. Myocardial hydrothorax is especially apt to go unrecognized in cases in which external edema is absent, the severe dyspnea being attributed principally to so-called cardiac or cardiorenal asthma and pulmonary congestion. It is not uncommon to meet cases of myocardial insufficiency that simulate closely valvular disease, particularly mitral incompetency, with which may be associated a mild grade of stenosis. There is not obtainable, however, a clear history of acute articular rheumatism in chronic myocarditis, but commonly of one of the exciting factors of secondary dilatation of the heart, such as physical or mental overstrain, an intercurrent febrile affection and the like. Treatment has reference to removal of transudate by tapping the chest and correction of the causative condition so far as possible by hygienic and medicinal means. It is futile, as a rule, to attempt to get rid of the transudate by the exhibition of digitalis and other cardiac stimulants without first withdrawal of the fluid by aspiration if it be considerable in amount. The myocardial insufficiency demands resort to remedies that will strengthen the heart muscle. Rest is the most valuable adjunct in the treatment of the cardiac dilatation to which the hydrothorax is due. It must be, however, absolute and long continued. The use of saline laxatives carried to the point of rather active catharsis was of decided service in a few of my cases. In five instances of the series herewith reported a salt-poor diet was employed with favorable effect, re-accumulation of the transudate being thereby noticeably delayed.

DISCUSSION.

Dr. Judson Daland: As the symptomatology is readily explained by the condition of the myocardium the liquid in the pleura is overlooked because no physical examination is made. In my experience certain of these cases have not done well under the influence of digitalis, more especially if we have reason to believe there is degeneration of the myocardium. Strophanthus is more uniformly beneficial, provided the preparation is active. The tincture as ordinarily obtained is inert. In hypertension with myocardial inflammation or degeneration I have been unable to demonstrate that the hypertension has been permanently reduced by such doses of nitroglycerine as could be given with safety. Particularly important is it for us to bear always in mind the possibility emphasized by Dr. Anders that

a latent unilateral hydrothorax may develop at any time during the course of myocardial inflammation or degeneration and require early and prompt removal by the aspirator.

DR. JAMES TYSON: Whatever may be the more remote cause of non-inflammatory accumulations of fluid in the chest cavities I believe they are practically due to cardiac weakness or obstruction to the onward movement of the blood or to both combined. The frequency of the invasion of the right chest as compared with the left might have been further illustrated by reference to the observations of the late Dr. J. Dutton Steele, who found that out of 100 cases 83 were double and 17 single, and that of the 83 double three-quarters were right sided, and of the 17 single 10 were right sided. I have learned that it is not well to wait before tapping for the effusion to become large if one is certain that it is present on one side or on the other.

DR. THOMAS MCCRAE: One possibility of error in the recognition of these cases lies in the fact that when the amount of fluid is not very large, the dullness is regarded as being due to increase in the size of the liver. The fluid may persist in these cases for long periods and sometimes increases and decreases without any special change in the cardiac condition. This is particularly seen in patients who refuse tapping. In some cases the removal of a very small amount of fluid is followed by rapid absorption of the remainder.

DR. ANDERS, closing: My object in presenting this paper was to refer to the cases of hydrothorax in which there was no external dropsy at the onset and no valvular disease, and therefore little ground for suspecting the presence of fluid in the pleural sacs. I want to emphasize the fact that we should systematically examine the thorax in chronic myocarditis, independently of either valvular disease or chronic nephritis. I believe that right-sided hydrothorax of cardiac origin is more often due to myocardial disease than has been supposed by clinicians. I would lay special stress upon the extreme latency of right-sided hydrothorax due to foregoing chronic myocarditis, and agree with Dr. McCrae and Dr. Tyson that we should do tapping early in the presence of a weak or dilated heart.

Book Reviews.

Napoleon's Campaign in Russia. Anno 1812. By DR. A. ROSE. With illustrations by O. Mertê. Taken from Yelin "In Russland, 1812." New York: Published by the Author. 1913.

The Illness and Death of Napoleon Bonaparte (A Medical Criticism.) By ARNOLD CHAPLIN, M.D. (Cantab.), F.R.C.P. With three illustrations. London: Hirschfeld Brothers. 1913.

These two widely diverse volumes on Napoleon, appearing almost simultaneously, may conveniently be considered together, since they illustrate, after all, merely varying aspects of the same personality.

The first volume, by Dr. Rose, should have been made at least interesting by its subject matter. Its style, however, is so amorphous, discrete, and inconsequential as to cause the narrative to fail largely of its effect.

The second volume, the substance of which has already appeared in the *Lancet*, represents a final attempt to lay or exorcise the persistent pathologic ghost of Napoleon's last illness and death. It is based on a careful examination of the documents and a microscopic study of the specimens preserved from the autopsy. Of the authenticity of these specimens there seems to be still some slight doubt; but, accepting them as genuine, there seems good ground for accepting the author's conclusion that "the cause of Napoleon's death was cancer of the lesser curvature of the stomach developing on the site of an old gastric ulcer." There were also vesical calculi, and at the apex of the left lung some small healed foci of tuberculosis. On the basis of the clinical history, and considering the medical knowledge and diagnostic methods of the time, Chaplin attempts a defence of the physicians who have been so severely criticized for their treatment of the Emperor. An appendix contains the brief biographies of these four physicians; a second, the story of the specimens, which are preserved in the museum of the Royal College of Surgeons, London; and a third an account of the exhumation of Napoleon on Oct. 16, 1840. There is a melancholy grandeur of interest associated with this final clinico-pathologic study of Napoleon's case, as with all that pertains to the history of the great Corsican.

The Modern Hospital. Its Inspiration; Its Architecture; Its Equipment; Its Operation. By JOHN ALLAN HORNSBY, M.D., and RICHARD E. SCHMIDT. With 207 illustrations. Philadelphia and London: W. B. Saunders Company. 1913.

This volume attempts much more elaborately what was attempted in Aiken's book on "Hospital Management," which was reviewed in the issue of the JOURNAL for July 6, 1911 (Vol. clxv, p. 24). The present volume is the work of only two authors, whereas the latter was that of many. What it loses, however, in variety of expert knowledge, it gains in singleness of purpose and insight. Despite its modest prefatory acknowledgment of incompleteness, it seems admirably thorough. Every element in the construction, equipment, and administration of a modern hospital is considered, and sensibly discussed, with a strong and attractive spirit of personality. The illustrations are many and well chosen. The book is a valuable contribution to the small but growing literature of hospital administration, and should therefore be of great value to the important class of professional hospital superintendents.

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PROMISCUOUS SANITARY DANGERS.

A MAN is prone to give little heed to many small things in daily life unless attention is directed to them in a striking or unusual manner. Were he to pay strict heed to all the minute interests and points of contact which compose his life, there would be but little time left for anything else. He must conserve his energy and attention, and put into practice instinctively his knowledge of the minutiae. A knowledge of the principles of personal hygiene, and an intelligent habit of avoiding certain small and unnecessary risks, will aid unconsciously, it may be, in preserving a normal and healthy body and mind.

In a recent bulletin of the Public Health Service[1] Drs. J. W. Kerr and A. A. Moll point out certain of these risks and at the same time call attention to a matter which, while small in itself, is of much importance in the field of personal and general hygiene. The authors show the danger attending the promiscuous use of drinking cups and roller towels.

Nowadays the prevailing sentiment is opposed to the use of the common communion cup and very properly so. It is surprising that its use, attended as it is with such obvious dangers of transmitting secretions and disease from one person to many, persisted as long as it did. As early as the fourteenth century, the Catholic church temporarily withdrew the use of the common communion cup from the laity because of the prevalence of the "plague." The inventory preserved in the records of the Protestant Church at Bopfingen, Wurtemburg, for 1703, show "one small gold-plated cup for the sick, one tin cup for infected persons," and such cups were recorded until 1832.

During an epidemic in Strassburg in 1564, it seems that a professor of theology suggested the use of individual cups in the communion service to prevent disease spreading through this medium. Dr. Terry in 1887 was apparently the first in America to advocate a change from the use of the common communion chalice. In 1894 the first careful scientific investigation of the subject was made by Dr. Charles Forbes. He found in the dregs of a communion cup two kinds of contamination,—from the mouth and from the clothing, including fibrous matter from clothes, various bacteria and bacterial spores, epithelial cells and mucus from the mouth. He reported an epidemic of diphtheria in 24 families of Rochester, which was conclusively traced to the use of a common drinking cup. A serious and fatal epidemic of this disease in San Jose, California, was proved to have arisen from a common communion cup, infected by a person in the early stages of the disease.

Tubercle bacilli, pus organisms, and the germs of syphilis, pneumonia, diphtheria and influenza have been demonstrated in common drinking cups. Every drinking cup or glass used by several persons carries these deadly possibilities. In the home, on the train, in the park or street drinking fountain, in public buildings, wherever it is found, the common drinking cup or glass is a dangerous menace and is a reflection on the intelligence and common sense of those who use it or allow it to remain. Among the all too few enlightened cities which by ordinance or regulation forbid the use of common drinking cups are New York, Buffalo, Albany, St. Louis, St. Paul, Toledo, Pasadena, Atlanta and Louisville. Nine States and one territory have such a law in force, including Colorado, Connecticut, Illinois, Indiana, Kentucky, Maryland, Massachusetts, New Hampshire, New Jersey and Hawaii. Such a provision is made by regulation of the State Board of Health in Idaho, Iowa, Kansas, Louisiana, Michigan, Mississippi, Missouri, Montana, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Utah, Vermont, Washington and Wisconsin. The California and New York State Legislatures passed such a law, but their respective governors vetoed it. The California State Board of Health, however, has adopted a resolution against the use of the

[1] Kerr, J. W., and Moll, A. A.: Common Drinking Cups and Roller Towels. Public Health Bulletin No. 57. August, 1912.

common drinking cup. The people of these two states in particular should demand that laws of such evident sanitary necessity be enacted and enforced.

Another and little considered source of danger is the common roller towel. This is an inexcusable abomination wherever it is found. The Committee on the Prevention of Blindness of the American Medical Association stated on June 8, 1912, that "the infection is carried by means of the atrocious roller towel, which is still found in some primitive establishments." Trachoma[2] is very frequently spread by means of the roller towel, and the opportunities for the transmission of virulent and dangerous diseases by this medium, are evident on a moment's consideration.

In this connection one must recall the ordinary practice in many cafes and restaurants of furnishing finger bowls to several patrons in succession, without cleansing or refilling the bowls. This is another dirty and reprehensible practice which the public should not tolerate. Dr. C. H. Lavinder calls attention to this abuse in the Public Health Bulletin of January 3, 1913. It is interesting to note that in spite of much current talk to the contrary, the mouthpieces of telephone transmitters do not seem to harbor or serve as media for the transmission of pathogenic organisms. After bacteriological examination of numerous telephone transmitters in public places, including those in a tuberculosis hospital and actually used by victims of the disease, Dr. Spitta concluded, "that the transmission of tuberculosis through the medium of the telephone mouth-piece is practically impossible."[3]

It is a matter of satisfaction that the federal Public Health Service is spreading such data and educating people in a correct knowledge of personal and public hygiene. Every factor in the prevention of disease and the improvement of hygienic conditions throughout the United States is receiving expert attention from these guardians of the public health. They do not seek to impose arbitrary restrictions or to interfere in local affairs. They are the servants of the whole people, commissioned with the responsible task of discovering and removing the causes of disease, and of leading each person to a correct knowledge of the principles and practical application of the science of maintaining good health.

[2] Trachoma a National Menace, Alfred C. Reed. The Survey,—.
[3] Spitta: Medical Officer, March 23, 1912

THE MILK PROBLEM IN MASSACHUSETTS.

THE milk problem in Massachusetts is one of those which seem to grow more instead of less puzzling as time progresses. Probably, however, this apparently increasing difficulty is due in part to the failure of the community to pursue any permanent policy in attempting its solution.

For several years the matter of milk legislation has been threshed over in successive sessions of the General Court; various measures, good, bad and indifferent, have been presented and discussed; but, from one circumstance or another, no definite action has been taken. Naturally this negative method has failed to produce positive results. While the supposedly conflicting interests of the several groups of persons concerned in the production and distribution of milk are acting against one another to produce this deadlock, the situation stagnates and the community continues to suffer in consequence.

In an editorial in the issue of the JOURNAL for Feb. 13 (Vol. clxviii, p. 249) we reviewed at length the milk situation in Massachusetts, discussing particularly the Ellis milk bill, then pending before the State Legislature, and advocating its passage. In the issue of the JOURNAL for Feb. 20 (p. 286) we also referred editorially to the Meaney bill (House No. 857) and to Senate bill No. 44, advocating their passage also as adjuncts to the Ellis bill. Since that time these and other suggested measures have been discussed extensively in joint sessions of the legislative committees on agriculture and on public health, with the disappointing result that only the Meaney bill and Senate bill No. 44 have been favorably reported, and all others, including the Ellis bill, have been given leave to withdraw. In this form the recommendation of these committees has gone to the Legislature, where, however, the Ellis bill or any other may be again substituted and passed.

Senate bill No. 44 is the official bill of the Massachusetts Association of Boards of Health. It fixes at 500,000 per c.c. the State standard for the maximum number of bacteria permissible in milk intended for sale. It does not render it mandatory for local boards of health to enter upon the work unless they so desire, but does give to the State Board of Health authority to proceed against dirty milk. The Meaney bill, entitled "an act to encourage the dairying industry of Massachusetts," provides that

"All milk sold, offered for sale, or held for sale, shall, in the final package, be labelled or marked first, as to the name of locality (by State) in which such milk has been produced; second, as to the artificial treatment, if any, to which such milk has been subjected.

"Such information shall be given in phrases of common use. The origin of milk may be conveyed by the use of the phrases "Massachusetts milk," "Maine milk," "New York milk," etc. In describing the artificial treatment, the phrases used shall be, "Pasteurized milk," "natural milk," "modified milk," "compounded milk," or other well understood terms, as shall be approved by the local Board of Health. But in the event of milk having been pasteurized twice or more, that fact shall be so stated."

As we pointed out in our previous editorial, the Meaney bill, though in itself excellent, "fails to provide the machinery necessary for its enforcement." Moreover, it is limited in its application. What is primarily needed by the community is a much broader and more comprehensive measure, like the Ellis bill, which at least attempts to deal with the entire situation, constructively. That the Ellis bill will be substituted and passed by the Legislature, notwithstanding the adverse report, is the belief of the Massachusetts Milk Consumers' Association, whose executive committee has recently issued the following statement through the public daily press:—

"Consumers throughout the State who have been working so loyally and unselfishly to save young lives and to prevent milk-borne epidemics need not be disheartened by the adverse report on the Ellis bill by a committee of the Legislature. This is exactly what has happened in previous years, the committee never having reported favorably upon it, but it has always been substituted in the Legislature itself. The Ways and Means Committee, however, has always favored it. This year the Ellis bill has more friends than ever in the House and Senate and we have no doubt that they will succeed in substituting it for the report of the committee.

"That the Ellis bill will save many lives is the opinion expressed by the highest health authorities throughout the country, and that being so, its passage by the Legislature is inevitable. It is no exaggeration to say that it is the most important bill before our legislators at present. It is almost inconceivable that they will not give the State Board of Health legal power to stop the sale of milk handled under unsanitary conditions and to provide a proper system of inspection to enforce clean milk laws and regulations."

Such is the legislative situation as it stands at the present writing. Unfortunately it has been further complicated by a recent message from Governor Foss to the General Court, in which he suggests a further entirely impracticable substitute for all the milk legislation now pending. The Governor vetoed the Ellis bill when it was first passed two years ago, and his political opposition to it constitutes another obstacle to its enactment.

Obviously, the milk problem in Massachusetts is too complex for solution by any one person. The opinions of unprejudiced experts, however, are fairly in accord as to the general method to be pursued in attempting to solve it. In another part (pp. 609-618) of this week's issue of the JOURNAL we publish a symposium on "Aspects of the Milk Supply," presenting the views of four acknowledged and disinterested authorities on this important subject. To these instructive articles we would especially call the attention of our readers for thoughtful perusal. The essence of their conclusion is that the safeguarding of the milk supply rests fundamentally on an intelligent, rigorous, organized system of inspection under the central control of the State Board of Health. Such a system is provided by the Ellis bill. This bill doubtless is not perfect, but it is by far the most satisfactory measure thus far proposed. Certainly it is better than the inadequate, disorganized policy hitherto pursued. We, therefore, strongly advocate the passage of the Ellis bill, believing that it will establish a system, which, when modified by time and experience, will secure for Massachusetts a solution of the milk problem worthy of an enlightened and progressive Commonwealth.

THE RESIGNATION OF DR. HARVEY.

AFTER eighteen years of faithful service, Dr. Edwin B. Harvey has been compelled by reason of failing health to tender his resignation as Secretary of the Board of Registration in Medicine. During this long period Dr. Harvey has devoted practically his entire time and efforts to the important duties of this office. He originated and drew up the bill and piloted it through the Legislature in 1894, while he was a member of the State Senate and was thus naturally much interested in its success. As indicated in his numerous annual reports, the act is by no means perfect, but it is the best attainable

to the present time. Numerous efforts have been made from time to time to secure amendments, but thus far without success. Such as it is, however, the act has done much to elevate the standard of medical practice in the State and to discourage the advent of a horde of ignorant pretenders, that are a menace to the public welfare.

Dr. Harvey deserves and will receive the hearty commendation of all who properly appreciate the amount and character of service rendered to the public and to the profession during his long and active career at the State House as representative, senator, and secretary of the Board of Registration in Medicine.

Dr. Walter P. Bowers, president of The Massachusetts Medical Society and a charter member of the Board, has been elected secretary. His high position in the profession and his well-known executive ability are guarantees of efficient service in his new position.

A HARVARD MEDICAL EMERITUS.

THE resignation of Dr. Clarence John Blake, of Boston, as Walter Augustus Lecompte professor of otology in the Harvard Medical School, as noted in another column of this issue of the JOURNAL, has been immediately and fittingly followed by his appointment as professor emeritus from September 1, 1913, the date when his resignation takes effect. This appointment comes in worthy recognition of his forty-three years of efficient service to his University as a teacher in his special subject. It is a matter of sincere gratification to Dr. Blake's many well-wishing and warm friends among his professional colleagues and former pupils that this honor finds him still alertly vigorous and interested in his work, able and disposed to devote many more years to its enjoyment in the continued study and practice of his chosen science.

MEDICAL NOTES.

ST. MARY'S HOSPITAL, ROCHESTER.—The recently published twenty-third annual report of St. Mary's Hospital, Rochester, Minn., records the work of that institution for the calendar year 1912. During this period 5986 patients were treated and 8703 operations performed. Ten nurses were graduated from the training-school.

MONTCLAIR BOARD OF HEALTH.—The recently published eighteenth annual report of the Montclair (N. J.) Town Board of Health records the activities of that body for the calendar year 1912. During this period the total death-rate was only 9.83 per 1000 of population, the local corrected birth-rate 21.5 per 1000 of population, and the death-rate of infants under one year 89 per 1000 births. There were no deaths in 1912 from typhoid fever, diphtheria, measles, or smallpox. Especial attention was devoted to mosquito eradication, over 800 mosquito breeding nuisances being abated.

A NEW MEDICAL PUBLICATION.—During this month of April has appeared the first issue of the *Clifton Medical Bulletin*, a new quarterly publication, edited by Dr. James G. Mumford, of Clifton Springs, N. Y. The JOURNAL is glad to welcome cordially the appearance of this new medical periodical, and to extend sincere wishes for its success.

BUBONIC PLAGUE IN COLOMBIA.—Report from Bogota, Colombia, on April 11, states that bubonic plague is epidemic at Santa Marta, a port on the Caribbean Sea. The number of cases is not given.

TWO CENTENARIANS.—William J. Barnett, who died recently at Linden, N. J., is said to have been born in 1812 in England. He is survived by one aged son, two daughters, several grandchildren, and numerous great-grandchildren and great-great-grandchildren.

John Butler, who died on April 10 at Asbury Park, N. J., is said to have been born on Jan. 16, 1810, in Staten Island, N. Y. It is stated that he never used tobacco, but that for the last 80 years of his life he drank eight cups of strong coffee daily, and consumed alcoholic beverages in moderation.

A LIVING CENTENARIAN.—Mrs. Ann Elizabeth Magill, of Philadelphia, who is said to have been born on April 14, 1809, celebrated recently her supposed 105th anniversary. Her general health is excellent.

BOSTON AND NEW ENGLAND.

MEASLES IN READING.—The epidemic of measles in Reading, Mass., which was noted in last week's issue of the JOURNAL, continues unabated. Thus far 75 cases of the disease have

been reported. Forty of these are among pupils of one school, and 20 among pupils of another, both of which have now been ordered closed for two weeks.

Lecture by Dr. Rucker.—It is announced that Dr. W. C. Rucker, Assistant Surgeon-General of the United States Public Health Service will give his lecture on "The Rodent, and Its Relation to the Public Health," illustrated with stereopticon, under the auspices of the Sanitation Department, Women's Municipal League, at Jordan Hall, Boston, on Friday, April 25, at 4.15 p. m.

No Smallpox in Fall River.—In the issue of the Journal for April 10 (p. 552), we noted the report that three cases of smallpox had recently been discovered in Fall River, Mass. This report, it appears, was erroneous, as there have actually been no known cases of smallpox in that city.

Seizure of Opium in Roxbury.—On Saturday, April 12, the federal customs inspectors seized $1000 worth of smuggled opium on the premises of a resident of Roxbury, Mass., who was arrested and held in $200 bail.

Indictment for Sale of Decomposed Eggs.—Before the Suffolk Superior Court last week, four dealers of this city were indicted for having decomposed eggs for sale as food.

Another Typhoid Carrier.—It is reported that the cause of a recent epidemic of 15 cases of typhoid fever in Quincy, Mass., has been traced to a carrier then employed as a maid on the farm in Danielson, Conn., which was the source of milk supply for the persons infected. The maid, now at Auburn, Mass., has been quarantined.

Lecture by Dr. Osler.—It is announced that on Tuesday of next week, April 27, Dr. Sir William Osler, regius professor of medicine at Oxford University, will give an illustrated lecture at Harvard College, Cambridge, Mass., on "The Oxford University Press."

Recent Hospital Bequests.—The will of the late Charles H. Greenwood, of Dorchester, Mass., who died on April 8, was filed on April 11 for probate in the Suffolk registry. Among numerous charitable bequests, it contains two of $2000 each to the Cullis Home for Consumptives and to the Boston Floating Hospital.

The will of the late Isaac M. Jackson, of Plymouth, Mass., contains a bequest of $10,000 to the Plymouth Hospital, to be known as the Abby Jackson Fund, the income to be used for the general purposes of the hospital.

Middlesex South District Medical Society.—At the annual meeting of the Middlesex South District Medical Society, held in Boston last week, the following officers were elected for the ensuing year: Dr. Godfrey Ryder of Malden, president; Dr. William D. Swan, Cambridge, vice-president; Dr. Lyman S. Hapgood, Cambridge, secretary; Dr. Charles A. Dennett, Arlington, treasurer; and Dr. Edward M. Plummer, Charlestown, commissioner of trials.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 15, 1913: Diphtheria, 37; scarlatina, 47, including 4 non-residents; typhoid fever, 2; measles, 207; smallpox, 0; tuberculosis, 87, including 5 non-residents.

The death-rate of the reported deaths for the week was 19.64.

NEW YORK.

Death-Rate in March.—Once again the death-rate is slightly in excess of that of last year, a result probably attributable to the greater prevalence of influenza, with the respiratory diseases which commonly complicate it. The weekly reports of the Health Department show that in the month of March the mortality in the city represented an annual death-rate of 16.79, as against 16.59 in February and 16.03 in March, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 4 in February to 5 in March; the weekly average from measles, from 10 to 19.75; from scarlet fever, from 13.75 to 20.75; from whooping-cough, from 6.25 to 8; from epidemic cerebrospinal meningitis, from 2.75 to 5; from pulmonary tuberculosis, from 196.25 to 200.75; from diarrheal diseases under 5 years, from 33.25 to 42.75; from tuberculous meningitis, from 19 to 21.75; from appendicitis and typhlitis, from 10.75 to 14.5; from cirrhosis

of the liver, from 18 to 21.5; and from puerperal diseases, from 17.25 to 19. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from diphtheria and croup declined from 38.75 to 37.5; from apoplexy and softening of the brain, from 24.5 to 19.75; from organic heart diseases, from 220.25 to 216.25; and from Bright's disease and acute nephritis, from 139 to 133.5.

COST OF SPRING CLEANING.—The Board of Aldermen having thus far failed to pass the special appropriation of $37,000 for the spring cleaning of the city asked for by the Health Commissioner, the Mayor determined to go on with the work without waiting for this, and on April 11, after a conference with the heads of the various city departments, issued a proclamation to the citizens, in which, after announcing the undertaking in concert "to clean up the whole city, indoors and outdoors, and to keep it clean," he, first, requests them to have all rubbish ready to put on the street on a certain day (to be announced) when it will be removed by the street cleaning force, and, second, calls attention to the section of the city ordinances forbidding the throwing of any rubbish or litter upon the streets. He also sent a letter to the Police Commissioner telling just what was expected of the police in carrying out the plans agreed upon.

APPOINTMENT OF DR. BIGGS.—It is reported that Dr. H. M. Biggs, general officer of the New York City Health Department, is to be State Health Commissioner, to succeed Dr. Eugene Porter, who has held that position for many years.

BEQUEST BY DR. ELIOT.—Under the will of the late Dr. Ellsworth Eliot of New York a bequest is made to Yale University, of which he was an alumnus, of $1000, to be known as the Joseph Ellsworth Memorial Fund.

DEPARTMENT FOR RADIUM TREATMENT.—It is announced that a department for treatment with radium emanation has been established at the New York Post-Graduate Medical School and Hospital, for public use and scientific investigation.

BIRTH OF QUINTUPLETS.—Report from Ithaca, N. Y., on April 11, states that Mrs. Charles Smith, of Danby, a yillage near that city, recently gave birth to living quintuplets. The weight of the respective infants is not given, but it is said that all five seem vigorous and are still alive.

Current Literature.

MEDICAL RECORD.

APRIL 5, 1913.

1. JELLIFFE, S. E. *A Summary of the Origins, Transformations and Present-Day Trends of the Paranoia Concept.*
2. MILLER, M. B. *Surgical Conditions of Abdomen in Their Relation to Life Expectation.*
3. *FALK, H. C. *Vapor Anesthesia and Its Advantages.*
4. NAMMACK, C. E. *The Differential Diagnosis of Lobar Pneumonia.*
5. MAVERICK, A. *Blunders Made by Nature; the Part Played by Nature in Causing Disease of the Digestive and Nervous Systems.*
6. FRANCISCO, H. M. *A Celloidin-Paraffin Method for Embedding and Handling Tissue.*
7. SEXTON, L. *Surgical Tuberculosis.*

3. Falk discusses the advantages of vapor anesthesia as used in about 800 cases at the French Hospital in New York. The apparatus used consists of three bottles placed together, with a single stop-cock. In the first is placed four ounces of ether, in the second 10 ounces of chloroform, in the third some hot water. A foot pump forces the air through the ether or chloroform and then through the hot water. The ether and chloroform can be given separately or in combination by means of this apparatus. Anesthesia is begun with nitrous oxide and is preceded by a hypodermic injection of morphine (gr. 1-8) and atropine (gr. 1-150). When the warmed ether vapor is turned on, the smothering, coughing and laryngeal spasm often experienced with cold ether does not occur, and the stage of excitement is generally absent. Saliva and mucus are not troublesome, as the warm ether vapor does not excite the salivary glands unduly. There is little or no bronchial irritation, even in patients with pulmonary tuberculosis. Postoperative vomiting is absent in about 65% of cases, and nervous symptoms are wanting. Only a small amount of ether is necessary to keep the patient narcotized, 2¾ ounces per hour being the average.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

APRIL 5, 1913.

1. MUMFORD, J. G. *An Adventure in Practice.*
2. MAVERICK, A. *Vienna Caustic.*
3. CHANCE, B. *Developmental Alexia.*
4. *SPANGLER, R. H. *The Treatment of Epilepsy with Hypodermic Injections of Crotalin.*
5. JAMES, W. M. *Infection with Entameba Tetragena.*
6. WILLIAMS, T. A. *Tabes Dorsalis Without Lymphocytosis.*
7. BRAND, A. *Hypertrichosis.*
8. GOODALL, H. S. *The Diagnosis of Pulmonary Tuberculosis.*
9. ALLAN, W. *A Comparison of Types of Continued Fever.*

10. WALFIELD, J. M. *Multiple Neuritis in a Child.*
11. EPSTEIN, J. *A Case of Psoriasis.*
12. FRIEDMAN, L. J. *Tetanus Successfully Treated with Antitetanic Serum.*
13. HOWLAND, J. *The Scientific Basis for the Artificial Feeding of Infants.*

4. Spangler reports eighteen cases of epilepsy treated with hypodermic injections of crotalin, giving the results of his study of the effect of the venom on the coagulability of the blood. The dose varied from 1-200 to 1-75 of a grain of the venom. He finds that the symptoms of epilepsy are closely related to increased coagulability of the blood and that it is possible to decrease this coagulability and probably to diminish the irritability of the nervous system through the hypodermic administration of crotalin solution. The writer's studies on the effect of the peptone poison, the other principal chemical element of snake venom, in epilepsy are still incomplete.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 12, 1913.

1. HALSTED, W. S. *Ligature and Suture Material. Also an Account of the Introduction of Gloves, Gutta-Percha Tissue and Silver Foil.*
2. STETTEN, DEW. *The Conservative Treatment of Diabetic Gangrene of the Lower Extremity.*
3. *FREEMAN, L. *Advice to Patients on Leaving the Hospital After Surgical Operations.*
4. HILPERT, W. S. *The Purity of Commercial Sodium Salicylate.*
5. *RICHARDS, J. H. *The Wassermann Reaction in Diabetes Mellitus with Special Reference to Acidosis.*
6. GAY, F. P., AND CLAYPOLE, E. J. *Induced Variations in the Agglutinability of Bacillus Typhosus.*
7. TAYLOR, K. *Sporotrichum Schenckii.*
8. EISENDRATH, D. N. *Pyelotomy for the Removal of Renal Calculi.*
9. ABRAHAMS, R. *A Case of Pulmonary Insufficiency.*
10. STRUNSKY, M. *The "New Heel" with a Pathognomonic Sign for Detecting Inflammatory Lesions in the Anterior Arch of the Foot.*
11. BACHMANN, R. A. *A New Operation for Hemorrhoids.*
12. JENNINGS, W. B. *Hemorrhagic Disease of the New-Born Infant Treated by Horse-Serum.*

3. Freeman dwells in detail on a subject of very practical importance, but one little written about. Much bodily and mental discomfort and many distressing sequelae of operations would undoubtedly be corrected if every patient undergoing a surgical operation was given advice as outlined in Freeman's paper. Would it not be well for hospitals to issue a printed set of directions for post-operative patients?

5. Richards finds the Wassermann reaction is positive in diabetes with marked acidosis. It is negative in cases of diabetes showing no acetone or only very slight amount. These positive cases did not have syphilis.

[E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

MARCH, 1913.

1. *CUSHING, H. *Concerning the Symptomatic Differentiation Between Disorders of the Two Lobes of the Pituitary Body; with Notes on a Syndrome Accredited to Hyperplasia of the Anterior and Secretory Stasis or Insufficiency of the Posterior Lobe.*
2. *CHENEY, W. F. *Gastric Disturbances in Tabes Dorsalis.*
3. *CABOT, R. C. *The Lymphocytosis of Infection.*
4. *SMITHIES, F. *Gastric Ulcer Without Food Retention; A Clinical Analysis of One Hundred and Forty Operatively Demonstrated Cases.*
5. ASHFORD, B. C. *The Economic Aspects of Hookworm Disease in Porto Rico.*
6. *SWANN, A. W. *Urticaria Treated with Epinephrin.*
7. WHITE, J. H. *The Dissemination and Prevention of Yellow Fever.*
8. HALL, H. J. *The Sanatorium of the Future.*
9. *CROHN, B. B. *The Diagnosis of the Functional Activity of the Pancreatic Gland by Means of Ferment Analysis of the Duodenal Contents and of the Stools.*
10. *THOMAS, T. T. *A Study of Empyema, with Special Reference to the Feasibility and Importance of Dependent Drainage.*

1. Cushing reviews the development of our present knowledge of the functions of the hypophysis, presenting the evidence from which it has been concluded that the gland is composed of two portions, each of which has its independent functions, the anterior portion having to do with skeletal development which is increased when the internal secretion is excessive, as in acromegaly, and a posterior portion which influences the sugar metabolism and the development and activity of the genital organs. Cases are reported in which increased skeletal development associated with adiposogenital dystrophy is attributed to increased function of the anterior portion of the gland coexistent with deficient activity of the posterior portion.

2. Cheney reports cases to emphasize the occurrence of recurrent gastric disturbances as the first manifestations of tabes, the other features of which appeared later. In such cases the diagnosis may be impossible, but the presence of a Wassermann reaction is suggestive.

3. Cabot reports six cases to illustrate the fact described long ago by Ehrlich that occasionally diseases which ordinarily produce a polynuclear leucocytosis are accompanied instead by a lymphocytosis. This lymphocytosis may be accompanied by glandular enlargement and so excite suspicion of lymphatic leukemia.

4. Smithies presents an analysis of the 140 cases among the series of 404 cases of gastric ulcer studied at the Mayo Clinic in which no food retention could be demonstrated. The conclusions are too numerous for repetition and are notably inconsistent with the common teachings. Perhaps the most important finding is that in these cases without food retention in the fasting stomach vomiting occurred in nearly three-fourths.

6. Swann in six cases of urticaria has given injections of 1-1000 adrenalin, eight minims repeated in ten minutes, with in every case fading of the rash and cessation of the itching in from five to twenty minutes. In five of the cases the urticaria returned, usually within a few hours, but in one the eruption did not reappear until three days later.

9. Crohn has studied the pancreatic ferments in the duodenal contents (obtained by Einhorn's duodenal tube) and in the stools of 27 cases. The results seem to give conclusive evidence as to the patency or non-patency of the ducts, and so far as can be decided by so small a number of cases the quantitative findings apparently give evidence as to the functional activity of the pancreas in the production of its external secretion. More observations, however, are desirable.

10. Thomas' article is a comprehensive study of the subject of empyema based primarily upon observations upon a formalin hardened cadaver in which the condition was not recognized in life so that the post-mortem relations were undisturbed. From these observations and from clinical findings he draws numerous conclusions of interest. He be-

lieves that more than is generally known the pus is enclosed in areas limited by adhesions between the visceral and the parietal pleura, the cavity so formed having its greatest extent at the base, but including a channel marking the course of the flow of pus from the original source of infection to the base under the influence of gravity. He emphasizes the importance of establishing drainage at the most dependent portion. [F. W. P.]

THE INDIAN MEDICAL GAZETTE.

MARCH, 1913.

1. *WATERS, E. E. *The Value of Amorphous Cinchona Alkaloid in Malaria.*
2. SUTHERLAND, W. D. *Anaphylaxis.*
3. BIRDWOOD, G. T. *The Management of the Puerperium and Its Relation to Puerperal Fever.*
4. BERKELEY-HILL, O. *A Report of Two Cases Treated Successfully by Psychotherapy.*
5. *BATTYE, W. R. *Spinal Analgesia.*
6. GIFFARD, G. G., AND FRASER, F. C. *Abdominal Section Performed on a Patient Anesthetized by Intravenous Infusion of Ether.*
7. FISHER, J. *A Case of Perforating Enteric Ulcer of the Ileum.*
8. SYMPSON, N. S. *Pneumococcal Peritonitis Occurring During Parotitis Without Any Lesion Being Discovered in the Abdomen.*
9. WATTS, H. *Appendicitis in a Hernial Sac.*

1. From a clinical study of malaria at Calcutta, Waters finds that the amorphous alkaloid is from three to five times as efficient as the sulphate of quinine in treatment.

5. Battye reports his methods and results in a large number of spinal analgesias with stovaine. [R. M. G.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 10. MARCH 6, 1913.

1. DENCKE, T. *Syphilitic Aortic Disease.*
2. WALB. *Lupus of the Nasal Mucosa.*
3. SCHÜTZ, F., AND L. *The Occurrence of Typhoid Bacilli in the Tonsils of Typhoid Patients.*
4. DE BESCHE, A. *Investigations on Tuberculous Infection in Childhood.*
5. BONTEMPS, H. *The Avoidance of Erroneous Microscopic Diagnosis of Tubercle Bacilli.*
6. ARONSON, H., AND SOMMERFELD, P. *Further Communications on the Toxicity of the Urine in Measles and Other Infectious Diseases.*
7. HARTTUNG, H. *Local Anesthesia in Operations on the Sternum.*
8. BÖCKER, W. *The Question of the Indications for Arthrodesis.*
9. HERZ, P. *Operative Treatment of Nephritis.*
10. HOLTH, M. *Mothers and Their Children Treated with Salvarsan.*
11. TESCHMACHER. *A Case of Cured Addison's Disease.*
12. SEMENOW-BLUMENFELD, S. S. *A Contribution on Latent Erysipelas.*
13. WOLFSOHN, G. *A Modification of Staphylococcus Vaccine.*
14. BUTTERSACK. *Soap as a Cause of Pruritus.*
15. DUTOIT, A. *Artificial Pneumothorax.*
16. DUTOIT, A. *Report on Thyroid Tuberculosis.*

No. 11. MARCH 13, 1913.

1. KÜTTNER, H. *Hyomandibular Fistula, a New Form of Congenital Cervical Fistula.*
2. *FÜLMER, H. *The Isolated Active Substances of the Hypophysis.*
3. SCHONG, C. *The Length of the Incubation Period in Acute Infantile Paralysis.*
4. LEUBUSCHER, P. *Therapeutic Experiments with Phosphorus in Epileptics.*
5. STOERK, E. *Round Ulcer of the Stomach and Lymphatism.*
6. LÖWENSTEIN, E. *Findings of Tubercle Bacilli in the Urine in Testicular Tuberculosis.*
7. UNGER, E. *Total Removal of the Stomach.*
8. GINS, H. A. *The Staining of Diphtheria Bacilli.*
9. STRAUSS, A. *The Copper Treatment of External Tuberculosis.*
10. HÜBNER. *Is Psoriasis a Cutaneous Symptom of Constitutional Bacterial Affections, or a True Skin Disease?*
11. ANTONI. *Seven Cases of Syphilitic Reinfection and Observations on Severe Salvarsan Intoxications.*
12. BECKER, P. F. *What Ought the Non-Roentgenologist to Know About X-Erythema?*
13. *KONDRING, H. *Clinical Experiences with Chlormetakresol for the Quick Disinfection of the Hands.*
14. DUTOIT, A. *The Radiotherapy of Thymus Hyperplasia.*
15. HERZFELD. *Railroad Hygiene in the Year 1912.*
16. EBERMAYER. *Legal Questions from Medical Practise.*

2. Fülmer has succeeded in demonstrating from the infundibular portion of the hypophysis a pure, crystallized substance, hypophysin, to which are due the combined actions of hypophyseal extract on the uterus, blood-pressure, and respiration.

13. As a result of his clinical experiments, Kondring believes that Chlormetakresol, in the form of Phobrol in a one per cent. solution combined with 70% alcohol or 20% acetone-alcohol, is admirably suited for rapid disinfection of the hands and of the operative field. It does not make the skin hard or sore. The alcoholic solution is absolutely odorless, and is suited for long or short operations. [R. M. G.]

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 8. FEBRUARY 25, 1913.

1. *KUTSCHERA, A. *Against the Water-Etiology of Goitre and Cretinism.*
2. *BOEHNCKE, K. E. *The Chemo-sero-therapy of Pneumococcus Infections.*
3. *WERNER, E. *Occurrence of Tubercle Bacilli in Circulating Blood.*
4. *ROSENBERG, E. *Occurrence of Tubercle Bacilli in Circulating Blood.*
5. *MAGNUS, G. *Treatment of Wounds with Sugar.*
6. WAGNER, A. *Venesection in Polycythemia.*
7. HIRSCHKOWITZ. *Roasted Wheat for Diabetes.*
8. OERI, F. *Suffocation Following Rupture of a Tuberculous Gland into a Bronchus.*
9. DANIELSON, W. *General Purulent Peritonitis from Tape-worm.*
10. ABDERHALDEN, E. *Effect of Serum-ferment in Pregnancy and Tumors.*
11. HOLZKNECHT, G., AND HAUDEK, M. *X-ray Studies of the Movements of the Pathological Stomach.*
12. *ASCHOFF, KRÖNIG AND GAUSS. *The Possibility of Influencing Deep-seated Cancer by Radiant Energy.* (*Concluded.*)

1. The facts adduced by the writer against the theory that goitre and cretinism originate from water seem conclusive. He says that epidemics of these diseases correspond to communities but never to water supplies; that animal experiment shows that goitre and cretinism may be independent of water; and that epidemiological evidence shows that the cause of both diseases must lie in the house, in the immediate neighborhood, or in the afflicted persons themselves. Transference by an intermediate host is probably possible.

2. Boehncke's experiments on white mice artificially infected with pneumococci seem to show that the protective power of anti-pneumococcus serum can be much increased by injecting ethylhydrocuprin. The hope is raised that similar methods may prove valuable in pneumonia.

3. and 4. Werner casts doubt on the evidence recently advanced to prove that tubercle bacilli may be demonstrated in the blood of patients infected with tuberculosis, and Rosenberg submits additional data in favor of their demonstrability.

5. Having obtained good results in the treatment of wounds with sugar, Magnus advocates its use enthusiastically.

12. The writers advocate the use of Roentgen and of radium-therapy to prevent metastasis in carcinoma of the uterus and of the breast. They say that the neighboring glands should be treated before they show signs of metastasis, and that deep-seated cancers grow more slowly and even improve under the treatment, as shown by pathological examination. [G. C. S.]

No. 9. March 4, 1913.

1. *Wilms. *Which Methods of Thorocoplasty Are the Best with Reference to the Extent of Disease?*
2. *Vulpius, O. *Treatment of Internal Injuries to the Knee.*
3. Kolb, K., and Laubenheimer, K. *Prophylactic Serum Treatment of Tetanus.*
4. Wagner, G. *The Conradi-Trock Tellurium Plate for Diagnosis of Diphtheria.*
5. Arnold, W. *Orthotic Albuminuria and Its Relation to Tuberculosis, Particularly Skin Tuberculosis and Syphilis.*
6. Abderhalden, E. *The Question of Specificity of the Protective Ferment.*
7. Altmann, K., and Dreyfus, G. L. *Salvarsan and Cerebro-spinal Fluids in Early Syphilis, etc.* (*To be concluded.*)
8. Waibel, C. *Injuries to the Toes from Accident. Prognosis as to Disability.*
9. Groedel, F. M. *Four Years' Experience with Constant-current Roentgen Apparatus; Important Advances with It.*
10. Wolff-Eisner, A. *Experimental Studies of the Dangers of Infection in Abortion and Their Prevention.*
11. Jansen. *A Simple Bandage for Fracture of the Clavicle.*
12. Mann, T. *Clinical Experience with Codeoval.*
13. Peiser, J. *Scales for Weighing Infants' Food.*

1. Wilms' views on thoracoplasty are likely to prove of special interest to surgeons who operate on the chest. He discusses the different methods, the special advantages of each and the means of avoiding aspiration pneumonia. He says that the general rule against opening tuberculous abscesses externally on account of the danger of resulting mixed infection may be set aside when a large pulmonary cavity already shows mixed infection.

2. By an injection of absolute alcohol at the point of rupture of the semilunar cartilage and by subsequent inflation of the knee-joint with oxygen, Vulpius succeeded in getting good recovery in some cases and he believes that this method may sometimes render operation unnecessary. [G. C. S.]

Berliner Klinische Wochenschrift.

No. 6. February 10, 1913.

1. *Rehn, L. *Surgery of the Heart and Pericardium.*
2. Klineberger, O. *Sudden Irresistible Desire to Sleep.*
3. Behrend. *A Case of Traumatic Paralysis of the Suprascapular Nerve.*
4. Loewenthal, W., and Seligman, E. *A Paratyphoid Bacillus Without Gas Formation.*
5. Rabinowitsch, M. *Lepra-bacilli in the Circulating Blood of Lepers, and in the Heart Blood of a Patient Dying of Leprosy.*
6. Aronson, H. *The Poisonous Effect of Normal Organ and Muscle Extract.*
7. Segale, M. *The Bio-chemical Differential Diagnosis of Ptomaine Poisoning from Wood Alcohol Poisoning.*
8. Ely, L. W. *Joint Tuberculosis.*
9. Pilf, T. *The Causes of the Low Birth Rate in Germany.*

1. This article, impossible to review, is an extremely good summary of what has been accomplished in the surgery of the heart up to date, with a number of suggestions as to diagnosis and treatment of various heart lesions. [J. B. S., Jr.]

No. 7. February 17, 1913.

1. *Libiger, J. *Papillomatous and Carcinomatous Tumors Produced in the Stomachs of Rats, by a Nematoid Worm (Spirotera sp. n.).*
2. Axhausen. *The Nature of Arthritis Deformans.*
3. Wolff, F. *The Examination of Feces for the Eggs of Parasites.*
4. Munzer, A. *Internal Secretion and the Nervous System.*
5. Aron, E. *Pneumothorax Therapy.*
6. Manoilloff, E. *Gastric Juice Anaphylaxis.*
7. Rosenstein, A. *A Third Method for Performing Complete Plastics on the Nose.*
8. Weisz, E. *The Treatment of Ankylosed Ankle Joint.*
9. Klamner, E. *A Durable Gram Stain for Gonococci, Fungi and Spirochetes.*
10. Wolff-Eisner. *Vaccine Therapy.*

1. The author describes an endemic, hitherto unknown disease in the stomach and esophagus of rats, caused by the presence of a nematoid worm developing in the lining epithelium of the mucous membrane of the above mentioned organs, and whose intermediate host is the scab (*Periplastar americana, periplantar orientalis*). The disease was first observed endemic in wild rats of an isolated locality, and was produced in laboratory rats by feeding the intermediate host. The disease causes, in the initial stage, a hyperplasia of the epithelium and inflammation. In pronounced cases this disease continues on to papillomatous formation, which may develop enormously and fill up the entire stomach cavity. The disease may be the forerunner of a malignant epithelioma with infiltrative heterogenous changes in the epithelium, or at least, so it was observed in four laboratory rats infected by scabs. In two and possibly three of these animals, metastases were observed in other organs. No parasites or eggs of parasites were observed in the metastases. [J. B. S., Jr.]

Annales De L'Institut Pasteur.

February 25, 1913.

1. Nicollé, M. *Autolysis.*
2. Alilaire, E. *Experiences on the Autolysis of the Colon Bacillus.*
3. Sahmbern, A. J. *Preparations of Toxic Solutions by the Aid of Autolysis.*
4. *Pozerski, E., and Pozerski, M. *Contribution to the Study of the Immunity Against the Anti-Coagulating Action of Peptone.*
5. Wollman, E. *Rearing of Sterile Chicks.*
6. Calmette, A., and Guerin, C. *New Investigations Upon the Vaccination of Cattle Against Tuberculosis and Upon the Kind of Tubercle Bacillus in the Vaccine.*

7. *ANDRIESCU, C., AND CINCA, M. *Action of Anti-typhoid Serum of Besvedka Upon the Course of Typhoid Fever.*

4. In a long article covering a lot of experimental work these authors have studied the action of peptone in dogs and rabbits. They found that one dose in a dog produced a characteristic reaction, including a temporary incoagulability of the blood which in a few hours would return to normal. A second injection on the same animal after the blood had returned to normal did not affect the coagulation. The rabbit, on the other hand, seemed to have a natural immunity against this substance.

On studying the matter further in the dog they found that it was not a true immunity produced by the excitation of antibodies from the first injection. They found that the first injection drove out into the circulation from the liver cells these anti-coagulating substances. The second injection apparently had no more of these substances to drive out, but did stimulate the liver to form more, as subsequent treatment of the liver with a blood peptone solution showed these substances present.

7. The authors report on a series of cases treated with Besvedka's anti-typhoid serum. The cases, they say, were severe and only one died. Although the fever does not appear from their charts to have been appreciably shortened, they think that the severity of it was abated. After the injections they were unable to get a single positive blood culture except in the fatal case, while they did frequently before. The question is raised whether the serum has an anti-endotoxic action or only a bacteriolytic action.

[C. F., JR.]

REVUE DE CHIRURGIE.

FEBRUARY, 1913.

1 *JACOB, O. *The Relations of the Motor Branch of the Radial Nerve with the Radio-Humeral Articulation.*
2. *CLERMONT. *Tibio-Peroneal Disjunction, and Fractures of the Ankle.*
3. MARTINI, E. *Alterations of the Thyroid Body in Different Experimental and Clinical States.*
4. *CATZ, A. *Retrograde Invagination of the Intestine.*
5. CHALIER, A., AND BONNET, P. *Primary Melanotic Tumors of the Rectum. (To be continued.)*

1. Jacob presents an anatomic study of the relations of the motor branch of the musculo-spiral nerve, from the point of view of the operative surgery of the elbow.

2. This attempt at classification of ankle fractures is well illustrated by diagrams and by ten excellent skiagrams.

4. Catz reports from his private observation a fatal case of retrograde invagination of the small intestine, complicated by volvulus of the invaginated coil. He discusses the etiology of the condition, and collects from the literature 33 cases of retrograde intussusception, and a dozen in which volvulus and invagination coexisted. [R. M. G.]

Obituary.

IRA VAN GIESON, M.D.

DR. IRA VAN GIESON died March 24 at the Bellevue Hospital in New York, at the age of 47. His death was due to chronic nephritis and its complications. Dr. Van Gieson was born on Long Island, and throughout his active career was associated almost entirely with New York and the institutions of that State. He was graduated from the College of Physicians and Surgeons in 1885, and for many years thereafter served the school as one of its teachers. He early developed an interest in scientific problems, particularly of a pathological sort connected with the nervous system, and although during the latter years of his life he did much work on hydrophobia he will be chiefly known as a brilliant investigator and student of neuro-pathological subjects. One of his earlier services was the discovery and application of a practical and simple method of staining nerve tissues, which has since gone under his name. His point of view was always original and at times fantastic. For many years he was a dominant figure at neurological meetings and invariably advanced ideas of striking originality and significance. One of his most brilliant pieces of work was the demonstration, twenty years ago, that certain conditions of the spinal cord found post mortem and supposedly demonstrating faults of development were in reality simply artefacts produced by imperfect and careless hardening of the tissues. This work created a profound impression in Germany and disclosed in striking fashion the fallacy of much painstaking investigation previously made by German students.

When the central laboratory, known as the Pathological Institute of the New York State Hospitals for the Insane, was organized Dr. Van Giesen was chosen, very naturally, as its first director. He held this position for about seven years and established during that time a most elaborate system for the study and pathological investigation of mental disease, insisting upon the thesis that the nervous system, although more highly differentiated, and therefore demanding special study, must, nevertheless, be regarded as under the same general laws as other organs, and that an examination of the nervous system should entail an equally painstaking study of the rest of the body. Valuable in theory, such a plan of organization met certain obstacles in practice. It was felt that the practical aspects of the subject were being sacrificed to theoretical considerations, so that finally, much to his disappointment, Dr. Van Gieson was obliged to give up a work upon which he had set his whole heart. He thereafter, for a number of years, was in the service of the New York Health Department and continued to work in the Laboratory, up to the time of his final illness, although for some years past he had been far less in the public eye than formerly.

Van Gieson was undoubtedly a man of great natural capacity, but somewhat unfortunately had a fixed assurance of the correctness of his own point of view. This led to inevitable and at times unnecesary friction with those with whom he was brought into intimate contact. He was pleasing and cordial in manner, but during the latter years felt keenly the disappointment of being obliged to renounce his chosen work

and became something of a recluse. He has unquestionably added materially to our knowledge of many details of medicine and did some work of extraordinary brilliancy. His death will be regretted by all who knew him intimately.

FRANCIS HENRY COHAN, M.D.

Dr. Francis Henry Cohan, who died at Leominster, Mass., on February 13, 1913, of pneumonia complicated by nephritis, was born at Nashua, N. H., in 1871. After obtaining his general education at St. Rose Academy and Holy Cross College, he engaged in business for a time before beginning the study of medicine. He received the degree of M.D. from the Bowdoin (Maine) Medical School in 1901, and immediately settled at Leominster, where he continued active in the practise of his profession until his death. He was untiringly energetic and zealous in all medical and surgical interests, and it was largely owing to his efforts that the Leominster Hospital was established last year. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow.

Correspondence.

MEMORIAL TO LORD LISTER.

The Royal Society, Burlington House,
London, W.

March, 1913.

Mr. Editor: A large and influential Committee was recently constituted at the instigation of the Royal Society and the Royal College of Surgeons in order that the priceless services of the late Lord Lister to the cause of science and the alleviation of human suffering should be commemorated by some suitable memorial. To give effect to this proposal an Executive Committee was appointed for the purpose of deciding what should be the form of the memorial, and of taking such steps as might be necessary to organize the collection of subscriptions, and to carry the design into execution. This Committee has met on several occasions, and considered many proposals, and has come to the conclusion that the most suitable memorial would be one comprising:

1. A Tablet with medallion and inscription in Westminster Abby.
2. The erection of a Monument in a public place in London.
3. The establishment of an International Lister Memorial Fund for the advancement of surgery, from which either grants in aid of researches bearing on surgery, or awards in recognition of distinguished contributions to surgical science, should be made, irrespective of nationality.

At a meeting held at the Mansion House, in the City of London, these proposals were supported by the speakers, namely The Lord Mayor, The Lord Chancellor, Lord Avebury, the Presidents of the Royal Society and the Royal College of Surgeons, the Hon. W. F. D. Smith, Mr. Frederick M. Fry, and unanimously adopted.

To carry out the proposals and commemorate Lord Lister's worth in a suitable manner, a large sum of money will be required, and it is proposed to form Committees in the provinces, in the dependencies of the Empire, and in foreign countries, to take such steps as are necessary in order to co-ordinate the collection of subscriptions. There can be little doubt that any appeal issued in favor of this tribute to the great Surgeon's memory will be responded to with generous sympathy, not only in the British Empire, but in many foreign countries, where his beneficent work has met with grateful appreciation. We, therefore, beg leave to ask you to assist the objects of the memorial by making a donation to the funds.

We are, Sir,
Your obedient Servants,
Arch. Geikie,
Chairman of Executive Committee.
W. F. D. Smith,
Deputy Chairman of the Executive Committee.
Rothschild,
W. Watson Cheyne,
Hon. Treasurers.
John Rose Bradford,
Hon. Secretary.

Donations may be sent to the "Treasurers of the Lister Memorial Fund, Royal Society, Burlington House, W."

Cheques should be made payable to "The Lister Memorial Fund" and crossed "Bank of England, Western Branch."

LISTER MEMORIAL FUND.

The Royal Society, Burlington House,
London, W.

March 19, 1913.

Mr. Editor: The remarkable advance of surgical science achieved by the late Lord Lister, and the priceless benefits conferred by him on humanity at large by the alleviation of suffering and the mitigation of disease, have aroused in the British Isles a widespread desire that his epoch-making and beneficent work should be commemorated by some fitting memorial. A large and influential Committee has accordingly been formed in London for the purpose of raising the funds required for such a tribute to his memory, and a considerable sum has now been subscribed. It is proposed that the Memorial should be a threefold character, and consist of (1) a simple marble medallion bearing a sculptured portrait of Lord Lister to be placed in Westminster Abbey among the monuments of the nation's illustrious dead; (2) a larger and more conspicuous monument to be erected in some public place in London, the city wherein he lived and worked; (3) if funds sufficient shall be obtained, the founding of an International Memorial Fund from which either grants in aid of researches bearing on Surgery or rewards in recognition of important contributions to Surgical Science shall be made, irrespective of nationality.

We are led to believe that many persons in other lands who are acquainted with Lord Lister's services may be glad of an opportunity of recognizing the debt which the world owes to the great Surgeon, and may be willing to assist in this movement to perpetuate his memory. He was a foreign member of many learned academies and societies in all civilized countries. He likewise held Honorary Degrees from many foreign universities. In these various institutions we think there may be not a few members who might be willing to add their contributions.

The sum already subscribed or promised is, perhaps, sufficient for the completion of the first two parts of the proposed Memorial, which are of a more local nature. But the third object is international in character, and the funds in our hands are as yet insufficient for its adequate establishment. On behalf, therefore, of the Lister Memorial Committee, we make this appeal for assistance from other countries in order that the provision of an International Lister Fund may be accomplished on a scale worthy of the illustrious man and of the debt under which

the civilized world lies to him. We shall welcome all contributions as evidence of the appreciation with which Lord Lister's services are regarded.

We trust that in the important institution over which you preside there may be some who would make this appeal publicly known and would be willing to collect subscriptions, to be forwarded in due course to the British Committee.

Signed, in the name of the Lister Memorial Committee,

JOHN ROSE BRADFORD,
Honorary Secretary.

Miscellany.

NOTICE.

WANTED—A GRADUATE NURSE AS HOSPITAL SUPERINTENDENT. AMERICAN HOSPITAL FOR WOMEN AND CHILDREN, MADURA, SOUTH INDIA.

Among the patients in 1911 were 41 Europeans and Eurasians, 3820 Indian Christians, 7446 Hindus (of all castes) and 1057 Mohammedans.

Nearest hospital for women is 70 miles distant. Patients sometimes come 100 miles to be treated. The doctor has visited patients 70 miles from the hospital.

Environment: Madura, a city of 135,000 inhabitants in the Madras Presidency, is situated in latitude 10 degrees north, about 300 miles southwest of Madras. It is a center of interest for tourists who visit the famous temple of Menarchee which covers 13 acres in the heart of the city. The district included in the Madura Mission has a population of 2,573,000. Work here was begun by the American Board in 1834. The Tamil language is spoken throughout the district. Other Christian institutions in Madura are the American College, Girls' Training and High School, Lucy Perry Noble Bible Training School, Albert Victor Hospital for Men, American Hospital for Women and Children.

Opportunity: A new woman's hospital will be erected as soon as the $55,000 necessary for land and buildings can be raised in the United States. As there has never been a trained American nurse in the hospital the opportunity to enter upon enlarged work with new equipment is limitless. The great physical sufferings of women in the east which can only be relieved by women present another great opportunity. A trained nurse would be of untold assistance to the American physicians in performing operations as it is almost impossible to secure adequate Indian helpers for such delicate service.

A great increase in the efficiency of medical work for women will be possible when an American nurse is secured as there is constant need of oversight which the physicians cannot give. The standard of work done by Indian helpers can only be raised by such constant oversight.

Social Life: The American nurse would probably live in a mission bungalow with the two American physicians. She would have her own bedroom and would share with her associates the dining and living rooms.

In the city of Madura are 20 American missionaries and in the entire Mission within a radius of 50 miles from Madura are 48 workers connected with American Board stations. An European community of about 100 members gives added opportunities for social intercourse. Tennis is the quickest and most popular form of recreation.

During some part of April or May practically all missionaries and European residents from a large district of Southern India go to the beautiful hill station of Kodai, 50 miles by rail and cart from Madura. Such a large assembly of congenial people furnishes opportunity for delightful social intercourse.

Qualifications: A strong constitution, a good education, a first-class hospital record, ability to learn the language, qualities of leadership, deep spiritual life.

Support: Salary is $500 and room in mission building. Board is about $13 a month. Extra allowances are made for language teacher and vacation expenses.

A missionary who applies for permanent appointment (terms of service seven years with one year of furlough) receives an outfit allowance of $250.

SOCIETY NOTICES.

THE CENSORS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, May 8, 1913, at 2 p. m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 p. m. to

WALTER C. HOWE, *Secretary,*
303 Beacon Street.

RESIGNATIONS.

DR. EDWIN H. HARVEY has resigned as secretary of the Massachusetts State Board of Registration in Medicine, but will continue a member of the board.

DR. CLARENCE JOHN BLAKE has resigned as Walter Augustus Lecompte professor of otology in the Harvard Medical School, his resignation to take effect on September 1, 1913.

RECENT DEATHS.

DR. CLARA JANE ALEXANDER, of Boston, who died on April 9 at Mysore, South India, was born in Blairsville, Pa. She graduated in 1889 from the Woman's Medical College of Pennsylvania, and served for a year each as resident physician at the Blockley City Hospital, Philadelphia, and at the Children's Hospital on Staten Island, N. Y. In 1892 she became resident surgeon at the New England Hospital for Women and Children, of which she was subsequently appointed assistant surgeon and finally visiting surgeon. She was also physician to the Pope Dispensary. She was a member of the American Medical Association, of the Massachusetts Medical Society, of the New England Hospital Medical Society, and of the Boston Medical Library. She was president of the New England Alumnae Association of the Woman's Medical College of Pennsylvania.

DR. JARED GROVER BALDWIN, who died on April 11 in New York City, was born at Montrose, Pa., on July 18, 1827. He received the degree of M.D. from New York University Medical School in 1853, and immediately settled at New York, where he continued active in the practice of his profession until his retirement a few years ago. He was for many years censor of the New York Homeopathic Medical College and Hospital, and was visiting and later consulting physician to the Hahnemann Hospital. He was a member of the American Institute of Homeopathy, of the New York State and County Homeopathic Medical Societies, and of the Homeopathic Materia Medica Society. He is survived by his two sons.

DR. THOMAS W. CLEMENTS, who died on April 13, in Brookline, Mass., was born at Weymouth, N. S. After serving in the ranks throughout the Civil War, he began the study of dentistry, and graduated from the Boston Dental College in 1872. He was a member of the Massachusetts Dental Association. He is survived by his widow.

DR. MARK W. PRAY, who died on April 4 at Framingham, Mass., was born in 1867. He formerly practised dentistry in Attleboro, Mass. He is survived by his widow.

Original Articles.

LOCALIZED OSTEOMYELITIS OF THE LONG BONES.

BY CHANNING C. SIMMONS, M.D., BOSTON.

Surgeon to Out-Patients, Massachusetts General Hospital; Assistant in Surgery, Harvard Medical School.

THIS paper is a plea for the early recognition and prompt, energetic treatment of the mild cases of osteomyelitis, bone furuncle. These cases are extremely mild, localized, and are often overlooked or mistaken for "growing pains" rheumatism, or strain until an abscess develops in the course of several weeks or months. In some the infection is of such a mild type that the inflammation subsides without the discharge of pus but in nearly every instance causes trouble later in life.

The impression left in the mind of the practitioner after reading the usual text-book description of osteomyelitis is that of an extremely acute infectious disease, with symptoms of toxemia, occurring in young children and involving the whole bone. Too little attention is paid to the milder types of which bone abscess, Brodie's abscess, is the chronic form. This is much more common than the classical diffuse type. The orthopedic surgeons as a class are probably the only men to whom it is a well recognized disease and who treat it promptly and efficiently. The general practitioner does not have the facilities at hand for an x-ray or, more properly speaking, one who can interpret the plates, for every case of sprain that does not yield readily to treatment, and the disease may run a very mild course. Of the cases in this series 15 had run a subacute course and had had one or more palliative operations performed. These consisted usually of opening a superficial abscess with temporary relief, which in some instances lasted from one to several years. Of 13 long standing cases 11 had had previous operations, 10 two or more, while a few had had six or eight. It is in these cases that cure is very difficult to achieve on account of the secondary changes that occur in the bone.

The same remarks as to the prompt recognition and treatment of the milder type applies to all forms of osteomyelitis as seen in the general service of any large hospital. Thus at the Massachusetts General Hospital I have recently treated 52 consecutive cases of osteomyelitis only 11 of which were acute and recognized as such. Five of these were recommended to the hospital by me as emergencies. Of the chronic cases a few were of several months but most of many years' duration and had had several operations performed. These in the majority of cases were inadequate or not done at a time when a rapid cure might reasonably be expected.

The classification of osteomyelitis is difficult. From the point of view of the pathologist it is a simple matter being either acute or chronic but this gives the surgeon little help in regard to the clinical manifestations and indications for treatment in a given case. The following are two classifications: the first simple and accurate but very brief (Goldthwait, Painter, and Osgood),[1] the second complete and somewhat unwieldy, perhaps, but arranged to guide the surgeon rather than for the pathologist.

Classification. (Goldthwait, Painter and Osgood).

ACUTE. Localized.
Diffuse.
CHRONIC. Localized.
Diffuse.

Author's classification.

ACUTE.
- Central.
  - Diffuse.
    - Fulminating.
    - Ordinary acute.
  - Localized.
    - With bone destruction.
    - Mild type (bone furuncle).
- Periosteal.
- Epiphysitis.
- Secondary.

CHRONIC.
- Central.
  - Diffuse.
    - Six to ten weeks' duration.
    - Three to twelve months' duration.
    - After many years.
  - Localized.
    - With bone destruction.
      - Six to ten weeks' duration.
      - Three to twelve months' duration.
      - After many years.
    - Bone abscess (mild local type).
      - Up to one year's duration (subacute).
      - After one year's duration.
      - "Resting" or "sterile" cases.
- Periosteal.
- Epiphysitis.
- Secondary.

This classification, particularly in the chronic form, is made solely in regard to the proper treatment to be instituted in a given case.

This paper deals only with the localized central osteomyelitis of the mild type, both the acute and chronic forms.

The twenty-six cases on which this paper is based naturally group themselves into certain definite classes.

1. *Early Acute.* Four cases. These were seen approximately from three to fourteen days after the onset of symptoms. They all presented typical symptoms of a mild infectious osteomyelitis. There was a history of injury in two while two were spontaneous. The symptoms were mild constitutional disturbance, malaise, and

pain referred to the bone near a joint. None had a temperature over 101.5°, but all had a slight leucocytosis. In these cases the bone was trephined and the marrow showed evidence of inflammation, although in two no frank pus was found. Three gave a positive culture, two staphylococcus aureus and one albus, while in the fourth the swab was allowed to dry before planting and no growth occurred. Following the operation the constitutional symptoms subsided and the temperature dropped to normal. The wounds healed in a few weeks. I believe that if no operation had been done a typical bone abscess would have developed but I do not think the infection was virulent enough to cause a local osteomyelitis with destruction of bone and the formation of a sequestram.

2. *Late Acute.* Three cases. Cases seen a few weeks after the onset of symptoms in which a definite local bone abscess was present (bone furuncle).

3. *Subacute bone abscess.* Five cases. Bone abscess of less than one year's duration. The changes in the surrounding bone in these cases were marked but not as great as in the next group and good results were obtained by operation in this as well as in the two previous groups.

4. *Chronic Bone Abscess.* Eleven cases. Of from one to many years' duration showing marked eburnation of the bone surrounding the abscess. The end results of operation on these cases were poor as compared with the previous groups.

5. *"Resting Abscess."* Two cases. Long standing cases of a very low grade infection with mild symptoms, where the operation showed a cavity filled with clear fluid and lined with fibrous tissue. The culture from these cases was sterile. These have been termed "resting abscesses" by Thompson. They were easily cured by operation.

The success of operation on these cases depended in a great measure on the length of time after the onset of the disease the operation was performed.

Many papers with reports of cases have been written on Brodie's abscess, the name often applied to bone abscess in the chronic stage, and many suggestions made as to treatment chiefly in regard to the closure of stiff walled cavities in bone. Few, if any, of these papers give the end results of the operations in a large number of cases so it is impossible to judge of the values of the different procedures. Gross[2] in a complete article analyses 141 cases of bone abscess and gives a review of the literature to date (1901). Thompson[3] has also written an instructive article and had the opportunity to examine several specimens microscopically. From his work the best idea of the pathology may be derived.

Etiology. The etiology is the same as in any form of osteomyelitis. Either spontaneously or as the result of mild trauma, or exposure, an infection occurs in the epiphyseal end of the diaphysis usually in the long bones. The tibia, especially the upper end, is more commonly involved than any other bone. The following statistics are of interest. They are somewhat condensed.

Homans.[4] 105 acute cases of osteomyelitis in children.

Femur	40
Tibia	38
Fibula	7
Humerus	11
Radius	4
Ulna	3
Clavicle	2

LeConte.[5] 60 cases seen in a general hospital service.

Tibia	47
Fibula	6
Humerus	6
Femur	3
Ulna	1
Clavicle	1

Gross. 141 cases of bone abscess.

Tibia	101
Femur	15
Humerus	18
Radius	4
Ulna	2
Both ends tibia	1
Tibia and fibula	1

Simmons. 26 cases. Bone abscess. Acute and chronic.

Tibia	14
Fibula	1
Femur	5
Humerus	4
Metacarpal	1
Metatarsal	1

The involvement of more than one bone is not at all uncommon and while one focus of infection may be severe, another may be mild. The existence of multiple foci presupposes a general systemic infection which in the severer forms of osteomyelitis is common. Five in this series of 26 cases had more than one bone involved, three having several. Thus in Case 46 the humerus, scapula, femur, and tibia were involved, and in Case 5 the ulna, rib, humerus, and the other tibia had been the seat of abscesses.

Age: The age at onset of the disease is the same as in the ordinary forms of osteomyelitis but most of the patients are not seen in a general hospital until they reach adult life. Careful questioning usually brings out a history of an attack of pain followed by an abscess that broke through the skin and discharged for some time, during childhood. The average age at onset of symptoms was 16.5 years, the youngest being four and the oldest 36. Trendel's[6] chart showing the age incidence, gives a gradually rising curve to the 17th year after which there is a rapid fall. The average age at which the

cases were admitted for treatment was 25.8 years. The duration of the symptoms before operation, excluding the acute cases, varied from four months to twenty-two years and in the chronic cases averaged 10.7 years. Most of these gave a history of freedom from symptoms for many years of which case 2 is a good example.

Sex: There were 20 males and 6 females.

Trauma: This bears an important place in the etiology. Twelve gave a history of some form of injury, 9 none, and in 5 no note as to trauma was made in the records. It also bore a distinct relation to the lighting up of an old process.

Syphilis: Certain cases of broken down gummata of bone are probably at times mistaken for bone abscess. The Wassermann test was done in but few instances, all of which, with one exception, Case 10, were negative. In this case a positive culture, an unknown bacillus, was obtained. Case 6 also gave a history of syphilis.

Pathology: The pathology of osteomyelitis is too well known to need repetition here. The infection usually takes place in the epiphyseal ends of the diaphysis of the long bones, this seat of predilection probably having some relation to the blood supply (Lexer).[7] In the mildest form of bone abscess an infection occurs which is of such low virulence that it is overcome by the natural resistance of the part. In these cases the infectious material becomes walled off and the symptoms subside without the breaking of an abscess externally. The focus may later take on new activity but it is probable that a certain number of cases have no further trouble and carry the walled-off infectious material throughout life.

If the infection is somewhat more virulent, the common form, a definite abscess develops which breaks through the cortex and later through the skin. A sinus is thus formed which, as the virulence of the infection subsides, often closes and a typical chronic bone abscess in the medullary portion of the bone results. Thompson assumes that, as the infection subsides, the granulation tissue lining the abscess cavity changes into fibrous tissue. At the same time the inflammatory irritation causes marked thickening of the cortex and obliteration of the medullary canal by new-formed bone. This sclerosis depends on the age of the abscess and the amount of irritation and apparently has a definite relation to the ease with which a cure may be effected by operation. In the long standing cases this sclerosis is very marked and it is in these that obliteration of the cavity by new formed bone after operation cannot be depended upon. The contents of the abscess after the closure of the sinus and subsidence of symptoms is serous according to Thompson, and he terms this the quiescent stage. It may later become a "mature" abscess in which case the serous contents again becomes purulent, the fibrous lining membrane becomes granulation tissue and the symptoms return. Gross, on the other hand, believes that the sclerosis and resulting diminished blood supply cause the bacteria to lose their virulence and that as rarefaction of the surrounding bone occurs from the resulting loss of irritation new blood vessels grow in and the bacteria again multiply with the recrudesence of symptoms. Which of the above theories is the correct one is immaterial as regards treatment and it is also true, as borne out by Cases 13 and 38 that an abscess with sterile serous contents and lined with fibrous tissue can cause symptoms. There is, following the sclerosis, a certain amount of rarefaction as the abscess increases in size. When this keeps pace with the formation of the pus but few symptoms result, but when pus forms faster than rarefaction takes place pain from tension ensues. This process of rarefaction and pus formation followed by eburnation and the return of pus to serous fluid may go on several times in the course of the disease without the breaking of the abscess through the cortex or skin. Sequestra are rarely seen in the abscess cavity.

Bacteria: Culture from the abscess, either acute or chronic, usually shows a staphylococcus, the aureus being more common than the albus. In the acute cases the growth may be profuse but in the chronic cases even where the cavity in the bone is filled with thick creamy pus there are only a few scattered colonies on the surface of the media and in several of the cases the pus was reported sterile. It is to be presumed that bacteria were present in these cases but not in large enough numbers to give rise to a growth. The two cases with definite fibrous lining and serous contents, the resting stage of Thompson, gave a sterile culture. Cultures from the 26 cases were as follows:

Staphylococcus aureus	12 cases
Staphylococcus albus	2 cases
Staphylococcus albus and aureus	1 case
Unknown bacillus	1 case
Sterile	7 cases
No culture taken	3 cases

Involvement of the joint rarely occurs. This is particularly true in children, as the epiphyseal cartilage is a firm barrier to the extension of pus in that direction. In the adult this natural barrier does not exist and infection of the joint is said to be relatively common even in the most chronic cases. It occurs by a gradual extension of the abscess by canalization of the bone. Two cases of involvement of the knee joint occurred in this series. In one (Case 11) infection of the joint followed operation for chronic bone abscess of the head of the tibia. In the other (Case 32) from the history, x-ray and examination of the knee, infection apparently occurred fairly early from extension of the process in the lower end of the femur. Both of these were adults, 18 and 23 years old respectively.

The pathology in the chronic cases of this series corresponded in general to the classical description. There was a definite rounded cavity in the bone filled with pus. On curetting the granulation tissue out, the walls were com-

posed of extremely hard eburnated bone, the thickness and denseness of which bore some relation to the duration and age of the abscess. The periosteum in what may be termed the relapsing cases, was thickened and loosely attached to the bone, which was roughened and of a dark reddish color. Small openings were usually present in the cortex leading to the cavity, particularly where a sinus opened through the skin. In the two resting cases with serous contents the eburnation of the surrounding bone was not as marked and the periosteum not thickened. The cavity in one of these was multilocular and in the other unilocular. Both were lined with a thick layer of fibrous tissue. In the four acute cases the periosteum was slightly thickened. In two of these there was a small amount of thin purulent fluid under it. In all, on opening the medullary cavity no definite pus was seen, but the marrow did not look normal. Three of these gave a positive culture, while in the fourth one, through some error the culture was not planted.

Thus bone abscess is what might be termed an osteomyelitis of the third degree, the second degree leading to local destruction of bone and sequestrum formation, and the first degree being diffuse osteomyelitis with destruction of the entire shaft.

Symptoms. The symptoms of the acute disease are frequently extremely slight and often overlooked unless one bears in mind the possibility of a mild osteomyelitis in all children with symptoms of an infection. Either spontaneously or as the result of a blow or sprain the child complains of an indefinite pain around a joint and, if the knee or hip, walks with a slight limp. He is apt to be irritable and restless, not sleeping well, and there are all the symptoms of a mild general infection. The temperature is slightly elevated, being 101 or 102 at night and a leucocytosis of from 16,000 to 30,000 is usually present, even in the mildest cases. Sprain or contusion, "growing pains" or rheumatic pains are the usual diagnosis at this time. Examination of the part shows the motion of the neighboring joint free. There is rarely, in these early stages, slight thickening of the bone and local temperature. Percussion on the bone gives pain and is in children the best method of determining this point. The normal bone should be percussed first, then the suspected one, beginning at the uninfected end. As the diseased end is approached the child will cry. In any obscure, infectious disease in children the long bones should be examined to rule out the possibility of an osteomyelitis.

At a later stage of the disease, in from three weeks to three months, depending on the severity of the infection, there is marked local thickening, pain and temperature, with some subsidence of the general symptoms. By this time also the pus has usually broken through the cortex and formed an abscess in the soft parts, which may break spontaneously with the relief of all symptoms. In certain cases the symptoms may persist for many months or years in a mild form, with exacerbations and remission of pain without the breaking of the pus through the periosteum (Case 13). After the rupture of the abscess the symptoms subside with the formation of a sinus leading to the bone, which persists for a varying length of time, finally healing. The abscess may then be said to enter the resting stage, which may last months or years, during which time it exists but causes no symptoms. It may at any time become active, usually following some trauma, when all the symptoms return and a new abscess forms, breaking through the skin as did the first. This may happen many times in the course of the patient's life, the abscess sometimes breaking and at others the symptoms subsiding without the discharge of pus.

In the two resting cases the symptoms consisted of a dull aching pain in the bone, worse after exercise and more marked at night than in the day time. This was pretty constant, but varied somewhat from month to month.

X-ray. The x-ray in the acute cases is of no value whatever, but in the subacute and chronic cases it is of the greatest aid, one being able to make an accurate diagnosis from it alone. In the mild acute cases, as in the severe, no change in the bone is visible. At the end of one or two weeks, some periostitis may be seen and some rarefaction in the medulla.

After several weeks the x-ray picture is typical, although it may vary considerably in different cases. In the common form there is marked thickening of the end of the bone occupied by the abscess, with an increase in density in its immediate vicinity. In the center of this dense bone a definite cavity can usually be seen. In many cases, particularly those of long duration, the thickening and eburnation is so great as to completely mask the cavity. The appearance is, however, typical, except where the abscess occurs in the centre of the shaft, in which case it may somewhat closely resemble syphilis. In certain other cases, even of long duration, there is comparatively little reaction about the abscess, the cavity being plainly visible, and the x-ray suggests either tuberculosis or some centrally placed bone tumor. This appearance is much less common than the former. All x-rays should be interpreted by an expert, as it is extremely difficult for a man not conversant with the radiographic plate to make an accurate diagnosis.

Diagnosis. The diagnosis in the early cases is difficult to make. It is all important, for I believe that if it was made and every case promptly and energetically treated, a rapid cure would result in nearly every instance, and patients with chronic bone abscess recurring year after year would not be as common as they are at the present time. This, besides saving the

patient a great amount of suffering and loss of time from inability to work, is also of importance in hospital economy. At present many patients spend from two to several weeks of their lives every few years in a hospital, instead of once. In all cases of sprain, "rheumatism," or "growing pains" in children, which persist and do not yield readily to treatment, the possibility of a low grade osteomyelitis should be considered. The local symptoms, taken in conjunction with mild constitutional disturbance, a slight temperature and a leucocytosis should make the diagnosis probable and an x-ray, if the condition has lasted one or two weeks, should make it positive. In these early cases, if the evidence is strong enough, operation should be performed, for in the few cases where the diagnosis is wrong, but little damage is done, while if it is correct, months or years of suffering are prevented. In the late cases the history and the x-ray make the diagnosis easy, but the possibility of a gumma or centrally situated bone tumor should be borne in mind.

Treatment. The treatment usually applied to bone abscess is that employed in abscess in general, *i.e.* drainage, but here the probelm is somewhat different, as we have a stiff walled cavity to deal with. The treatment employed in this series of cases, modified slightly to suit the individual case, was as follows: A tourniquet was used in every case when possible, as it allows of much more accurate work. In the early acute cases, before a definite abscess had formed, an incision was made to the bone. The periosteum was then stripped back and two or more openings made into the medulla with a small burr or trephine, the number and size of the openings depending on the appearance of the marrow. The cavity was then packed with iodoform gauze. The marrow was not curetted.

In the late acute and subacute cases, after the formation of an abscess, the incision was made and the periosteum stripped back, as in the earlier cases. The cortex was then removed with a gouge and chisel, opening the cavity. This was curetted out, the eburnated bone about it removed to a greater or less extent, and the cavity sterilized by swabbing out with 95% carbolic acid followed by 95% alcohol. In some cases the cavity was then packed with iodoform gauze. In others a small wick was introduced, the periosteum and soft parts sutured with cat gut, and the cavity allowed to fill with blood clot. In still others, after cleaning and drying the bone, Moorhof's bone wax was used. As is noted under results, it apparently made little difference what was done, as all healed in a reasonable length of time and have remained well one year or more.

In the chronic long standing cases practically the same three methods were employed. In these, however, it was found best to make a curved incision to the bone, turning back a flap of soft parts and periosteum. This made the suture of the periosteum in place after treating the cavity much more easy. The entire front wall of the abscess was removed, giving free access to all parts of the cavity, and also a large amount of the sclerosed bone. These operations, with the possible exception of the bone wax operation, are not sufficient, as shown by the results, to effect a cure in the chronic cases, as the endosteum has not the power to form new bone and obliterate the cavity.

The use of Moorhof's bone wax is indicated when it is impossible to obliterate the cavity in any other way. Silbermark,[8] Stewart[9] and others have reported many cases where wax has been used to fill these cavities, followed by healing by first intention and no further trouble, but I have been unable to achieve these results, although I think I have followed Moorhof's[10] technic carefully. Although in every case the wax has, in part at least, been extruded, I thoroughly believe in its use in certain cases, as it makes an excellent dressing, does away with the constant painful changing of wicks, and transforms a profuse purulent discharge into a slight serous one.[13]

Schede's[11] operation, of allowing the cavity to fill with blood clot, after sterilizing it, which later becomes organized, is theoretically sound, but practically is almost impossible of accomplishment in a septic cavity, no matter how much care is taken to render it sterile. It is applicable, however, to cases in the quiescent stage.

It would appear that as the bone is incapable of filling the defect, and as foreign substances, as Senn's decalcified bone chips, bone wax, etc., are not often tolerated by the body, it were best to obliterate the cavity by living tissue after Neuber's[12] suggestion.

In cases operated upon recently I have used this method, employing either muscle or skin flaps, the latter when possible. It is not applicable in all cases. In using skin flaps, in the head of the tibia, for example, the cavity is first cleaned out thoroughly. The side walls are then cut down as much as possible, transforming a deep hole into a somewhat concave surface. A flap of skin, with the pedicle towards the body, is then cut from one side of the incision and swung in so as to lie in the bottom of the old cavity, where it is retained either by one or two stitches or by the dressing. Considerable ingenuity must be used in obtaining a flap in a given case, and no definite rules can be laid down. This leaves two areas, one on each side of the flap to granulate, which may later be covered in by a Thiersch graft if necessary, but the main cavity is obliterated. At first there is an unsightly depression at the site of the flap, but this later fills out to some extent and the appearance is really of minor consequence. In places where skin cannot well be used, as in the lower end of the femur or head of the humerus, muscle flaps derived from the vasti, deltoid or triceps may be employed in a similar manner. It is necessary when muscle is used to

cut flaps very much larger than the cavity they are intended to fill, as the contraction that occurs is very great, and the flap when made is disappointingly small. The cases in which I have used this method are too few and sufficient time has not elapsed to allow definite conclusions to be drawn.

Another alternative in treating this condition is resection of the diseased portion of the bone subperiosteally with the hope of regeneration, and this in certain cases seems justifiable, although I have never employed it. Another expedient is the transplanting of a piece of bone, as a rib, to fill in the defect after resection.

SUMMARY OF RESULTS.

It is difficult to determine without an x-ray what cases are cured by a given operation and what are only temporarily relieved. Many cases after the spontaneous rupture of the abscess are free from all symptoms for many years, but the x-ray in these will show the cavity. The cases in this series have been followed from one to two years after operation, but x-rays have only been obtained of a few, as many of the patients live at some distance from the hospital and it is difficult to get them to report. In the few cured cases, where an x-ray has been taken, the eburnation has disappeared to a great extent and no cavity is to be seen.

Acute Cases. Early. Four cases. Bone trephined and cavity packed. All were healed inside of six weeks. These are comparatively recent cases, the last one having been operated upon only four months ago. They are well at present, but it is too soon to draw conclusions. (Cases 40, 41, 44, 48.)

Acute Cases. Late. (Of a few weeks' duration). Three cases. In one bone wax was used (Case 8, x-ray at end of one year); one was packed (Case 20); and in one the cavity was allowed to fill with blood clot (Case 10). All well one and one-half to two years after operation.

Subacute. (Less than one year's duration.) Five cases. In three of these bone wax was used (Cases 4, 16, 31), while the other two were packed (Cases 24, 32; x-ray at end of year). All were well one to one-half years after operation.

Chronic Cases. (One to several years' duration). Eleven cases. The end results in two of these have not been determined. Of the remaining nine, four are well from one to one and one-half years after operation. In one of these in which blood clot was used (Case 25) the abscess broke open again six months after operation and discharged two weeks, but the patient has now been well a year. I hesitate to put this case in the "well" group, as no x-ray has been taken. In the other three cases (Cases 2, 5, 7) wax was used. All were well over one year, and an x-ray was taken of one (Case 2). Five cases may be termed failures. In one bone wax was used (Case 17). At the end of a year a sinus still existed and the x-ray showed a cavity as large as ever. Three cases were packed. In one a bleeder (Case 6) the sinus persisted and the x-ray shows an abscess as large as before operation. The second healed rapidly after operation, but at the end of eight months the symptoms returned and the abscess broke again. In the third operation was followed by an infection of the knee joint, necessitating later resection. At the end of a year the osteomyelitis was well but the joint stiff (Case 11). It seems only fair to class this case as a failure. In the one case followed where the cavity was allowed to fill with blood clot, the wound healed rapidly, but at the end of ten months the symptoms returned and the x-ray showed a typical abscess (Case 28).

Thus, of the nine chronic cases only four are cured, and in three of these bone wax was used. In the fourth the cavity was packed but I am rather dubious as classifying this case as a cure.

Resting Cases. Of several years' duration with serous contents. Two cases. In these the cavity was allowed to fill with blood clot and the wound closed in layers without drainage. In both the symptoms were relieved and the wound healed by first intention. One is well one and one-half years later (Case 13, x-ray) and one ten months (Case 38).

These cases, although small in numbers, are, I think, very instructive, particularly as to the prognosis. They would seem to show that it made little difference what operation was performed in any case of less than one year's duration. The wound in the bone healed presumably with the obliteration of the cavity by new bone. This, at least in the few cases in which it was possible to obtain an x-ray, was what had happened. In these early cases the eburnation around the cavity was distinctly less than in those of longer duration, and at this time the endosteum is capable of forming new bone, which property it looses after a certain lapse of time, as does the periosteum. In the chronic cases, only four out of nine of which are cured, the same operation as done on the acute cases is inadequate. It is necesary in order to ensure a cure to obliterate the cavity with living tissue. It would thus appear that opening and draining the cavity in these cases with the packing after the sterilization of the cavity and the removal of some of the surrounding eburnated bone was not a proper operation. Neither is Shede's operation of allowing the cavity to fill with blood clot, even if this remains sterile, although this gave satisfactory results in the two resting cases. It would seem to be satisfactory providing the cavity in the bone is sterile, as besides these cases the author has used with success several times in cysts of the long bones and in one case of giant cell sarcoma. The use of Moorhof's wax has given, unexpectedly, better results, three cases out of the four in which it was used being cured. In these the wound was closed

without drainage, but in all at the end of one to two weeks a sinus formed which discharged serum and wax. In every case, therefore, the wax has been treated in part at least as a foreign body and extruded.

CONCLUSIONS.

Mild acute localized osteomyelitis is often overlooked in its early stages, but when recognized and treated promptly recovery usually occurs in a few weeks.

It makes little difference what type of operation is performed in the subacute cases, cases of less than one year's duration, if it is thorough. The results are almost uniformly good.

In the chronic, long standing cases of bone abscess operations such as are performed in the earlier cases with success often give unsatisfactory results, as the endosteum is not capable of filling in the defect No definite rule as to the type of the operation can be laid down, but each case should be considered individually. When possible it would seem best to obliterate the cavity with living tissue flaps.

SYNOPSIS OF CASES.

Early Acute.

Case 40. Female, 12 years old. Three days ago fell injuring right ankle. Now much pain and marked tenderness over lower end of tibia with slight edema and local temperture. X-ray shows no fracture and bone appears normal. Temperature 100°. Leucocytosis 16,000. Incision made over lower part of tibia. Periosteum thickened and some blood beneath it. Two openings made into medulla with burr and small amount of blood and puriform material evacuated. No frank pus found. Following operation temperature dropped and all symptoms relieved. Wound practically healed in three weeks.

Case 41. Female, 4 years old. Three days ago awoke at night crying with pain in the thigh. No history of injury. Pain has continued and has been "feverish." Examination shows thickening and tenderness over right trochanter. Much voluntary spasm. Temperature 102.5°. Leucocytosis 28,000. Incision over trochanter and three trephine openings made into medulla. Cloudy serum found in soft parts over trochanter, and few drops of pus in medullary cavity. Culture from both showed staph. aureus. Wound packed. Symptoms relieved by operation and wound healed in eight weeks.

Case 44. Male, 7 years old. Two weeks ago twisted knee. For three days severe pain in knee and restless. Examination: motions of knee perfect. Marked tenderness below tibial tubercle. X-ray negative. Temperature 101°. Leucocytosis 18,500. Incision over tender point and two openings made through cortex. No pus found but marrow very dark colored. Packed. Culture showed staph. albus. Symptoms relieved by operation.

Case 48. Male, 17 months old. Two weeks ago fell on right shoulder and two days later complained of severe pain in it. Has been fretful but sleeps well. Examination showed upper half left humerus thickened and tender. Motions of shoulder free. Temperature 102°. Leucocytosis 54,000. X-ray negative (poor). Incision through deltoid to bone. Abscess found in soft parts. Two openings made into medulla with burr. No pus found but culture from both abscess and medullary cavity showed staph. aureus. Symptoms relieved by operation.

Late Acute.

Case 8. Male, 9 years old. Sprained left ankle three weeks ago. Now has mild constitutional disturbance with local pain, swelling and tenderness. X-ray shows typical abscess of lower end of tibia. Abscess opened, contents curetted. Cavity sterilized and filled with bone wax. Culture staph. aureus. Healed by first intention but sinus formed at end of two weeks. Well at end of one year. (X-ray taken.)

Case 20. Male, 13 years old. "Boil" on outer side of left leg four weeks ago. Examination shows small discharging sinus near head of fibula and considerable thickening around head of tibia. X-ray shows definite cavity head of tibia. Large abscess cavity in calf of leg, popliteal space, and lower part of thigh opened and drained. Abscess in head of tibia opened and cavity packed. Well one year later.

Case 10. Male, 38 years old. Bone abscess head of tibia eight months ago, opened and packed. Two weeks before entrance severe pain and tenderness over head of fibula. X-ray shows periostitis and some rarefaction head of fiubla. Wassermann positive. Cavity filled with granulation tissue and small amount of pus found in head of fibula. Cavity sterilized allowed to fill with blood clot, and soft parts closed in layers with a small wick. Culture showed an unknown bacillus. Healing practically by first intention. Well two years later. On specific treatment.

Subacute.

Case 4. Male, 15 years years old. Blow over head of tibia four months ago and has been in bed treating for rheumatism ever since. Examination shows tender red area over head of left tibia with considerable thickening of the bone. X-ray shows marked thickening of the head of the tibia and periostitis with an abscess cavity. Abscess in soft parts and bone opened. Cavity in bone cleaned, sterilized, and filled with bone wax. Culture, staph. aureus. Some pocketing in soft parts during convalescence. Well one year later.

Case 16. Male, 16 years old. "Boil" broke below knee four months ago which has not healed. Examination shows thickening head of tibia with a discharging sinus around which there is considerable inflammation. X-ray shows typical abscess of dumbbell shape. Cavity cleaned out and filled with wax. Culture, staph. albus and aureus. Sinus persisted nearly a year. Well at end of two years.

Case 24. Male, 15 years old. Fell from wagon four months before, striking on right hip. Persistant pain and tenderness in region of trochanter worse lately and after exertion. Examination showed tender fluctuant swelling over outer upper part right femur. X-ray showed bone abscess in

shaft three inches below trochanter. Abscess opened and cavity in bone packed with gauze. Culture, staph. aureus. Wound healed in about five months. Well one and a half years later.

CASE 31. Male, 23 years old. Six months ago back of right hand swelled and became painful, without cause, followed by the opening of three sinuses in the palm which have been discharging since. X-ray shows large cavity in the end of the third metacarpal with some thickening about it. Cavity opened, found filled with pus, sterilized and filled with bone wax. Culture, sterile. Healed in six weeks. Well 17 months later.

CASE 32. Male, 18 years old. Blow on left knee ten months ago. Leg soon became red and swollen and abscess opened. In hospital four months and when discharged knee stiff. One week ago recurrence of pain and tenderness above left knee. Examination showed two sinuses lower inner aspect left femur. Knee nearly ankylosed. X-ray showed cavity four inches above lower end femur with considerable thickening of the bone and destruction of cartilage of knee-joint. Abscess in medulla opened, cleaned, and cavity filled with wax. Culture, sterile. During convalescence several pockets of pus in soft parts. Well 13 months later (X-ray taken.) Slight amount of motion in knee-joint.

CHRONIC CASES.

CASE 2. Male, 33 years old. Two previous operations. First trouble followed kick by a horse 15 years ago when abscess broke over head of tibia. Healed but broke again four years later. No symptoms then for 15 years. One year ago abscess broke again healing shortly, and one month ago same thing happened. Examination shows red tender swelling over head left tibia with considerable thickening. X-ray shows typical bone abscess of long standing masked by dense bone. Abscess opened, cleaned, and filled with bone wax. Culture, staph. aureus. Healing by first intention but sinus formed at end of about two weeks. Healed in four months. Well one year later. (X-ray taken.)

CASE 5. Male, 14 years old. Duration 10 years. Five previous operations. History indefinite but abscesses broke out 10 years ago over one radius, a rib, the humerus, and both tibiae. Sore has broken out on right tibia about once a year since. Examination shows many old scars over bones above mentioned. Over lower third right tibia soft parts red, tender, and fluctuant. Radiograph shows a typical bone abscess four inches above ankle in tibia with little thickening. Cavity opened, cleaned, and filled with bone wax. Culture, staph. aureus. Healed by first intention with the exception of a small sinus which discharged wax and serum for some time. Well 13 months later but letter rather unsatisfactory.

CASE 6. Male, 30 years old. Three previous operations. Blow on left knee 12 years ago and was laid up several months but recovered completely without operation. Three years ago severe pain in knee and small abscess opened in popliteal space. Two years ago a large abscess opened in same place. Pain in knee returned one month ago. Specific history. Examination, scar on inner side femur just above knee. Considerable tenderness and some thickening. Motions of joint painful. X-ray shows large cavity in lower end of femur. Abscess cavity in bone opened and packed. Recurring hemorrhage from all parts of wound for one week, following operation and hemoglobin dropped to 35%. (Some similar trouble at previous operations.) Three years later sinus persisted and x-ray shows cavity as before.

CASE 7. Male, 26 years old. Many previous operations. Nine years ago left ankle became swollen and abscess broke. No known cause. In bed nine months. Since then an abscess has broken about every six months which heals in a few weeks. Nine weeks ago ankle became swollen again and has been in bed since. Examination shows scar over lower end of left tibia. Soft parts red, swollen, and tender. X-ray shows abscess cavity and much thickened bone about it. Abscess cavity opened, cleaned, and filled with bone wax. Soft parts could not be accurately approximated. Culture, staph. aureus. Small sinus discharged six months. Well one year later.

CASE 11. Male, 23 years old. One previous operation. Seven years ago right knee became swollen and tender and abscess broke, healing in a short time. Four years later became swollen again and was operated upon in Ireland and thinks a piece of bone was removed. Healed and remained well till three years ago when abscess broke again. Examination shows two discharging sinuses over head of tibia and x-ray shows typical abscess head of tibia. Cavity opened, cleaned, and packed. Culture, sterile. Patient out of bed night of operation and three days later knee-joint found to be infected. Excision of joint eventually performed. Eighteen months later well with a stiff knee.

CASE 14. Male, 36 years old. Duration 22 years. Three previous operations. When 14 years old had a bone abscess of right foot and five weeks later one of right humerus. Healed but broke out again five and seven years later. Two weeks ago packing case fell on right foot and since then much pain and tenderness. Examination shows red, tender, swelling over head of first metatarsal and x-ray shows typical bone abscess cavity. Opened, cleaned, cavity allowed to fill with blood clot, and wound closed without drainage. Small sinus formed a few weeks later. No further report on case.

CASE 17. Male, 26 years old. One previous operation. Eight years ago attack of pain in right arm, with some constitutional symptoms, which eventually subsided. One year ago a second attack of pain and was operated upon for osteomyelitis humerus and musculo-spiral neuritis. Healed rapidly. For seven weeks has had pain, swelling, and tenderness at site of old operation. Examination shows scar four inches long outer side middle right humerus, with a sinus at the upper end. Bone thickened and tender. No limitation of motion. X-ray shows two connecting cavities at center of humerus. Cortex much thickened. Cavities opened, sterilized, and filled with bone wax. Wound closed without drainage. Culture sterile. The tourniquet during the operation was applied over the shoulder and remained in place about 45 minutes. It caused a complete brachial paralysis which, however, cleared up in about four weeks. A sinus discharging serum and wax formed a short time after operation but

healed in a few months. About ten months later pain recurred in the scar and an x-ray showed the abscess as large as before operation.

Case 21. Male, 22 years old. Duration four years. Trouble with right ankle four years ago and an abscess was opened that time. Well till six months ago when ankle became red, swollen, and tender. Examination shows two scars over lower end right tibia. X-ray shows bone abscess lower end of tibia. Opened, cleaned, and filled with bone wax. Culture, staph. albus. One month later sinus discharging serum and wax. No further report.

Case 25. Male, 35 years old. Twenty or more years ago had bone disease of both tibiae and both humeri and abscesses have broken out several times since. One year ago right tibia was operated upon. Two months ago large abscess broke under left deltoid but is now healed. Examination shows considerable thickening head of left humerus. Motions of shoulder free. X-ray shows cavity in the head of the humerus and considerable thickening of the bone. Abscess opened, cleaned, cavity allowed to fill with blood clot, and wound closed in layers with a small wick. Sinus discharged about three months. Nine months later a small abscess broke in the scar which healed in two weeks. Well now (one year later). Culture staph. aureus.

Case 28. Female, 17 years old. Six years' duration. Two previous operations. Fell six years ago and soon after an abscess formed at the lower end of the right femur. Operated upon ten months ago for osteomyelitis of femur. Examination shows a discharging sinus at the inner side of the right femur four inches above the condyle. X-ray shows the bone much thickened, probably masking an abscess cavity, and the periosteum rough. Abscess opened, cleaned, allowed to fill with blood clot, and wound closed in layers with a small wick. Culture, staph. aureus. Sinus persisted several months. One year later an attack of pain and x-ray shows abscess as before.

Case 30. Female, 30 years old. Duration four years. No previous operation. Four years ago severe pain in right shoulder subsiding after several weeks. Two years ago similar attack. Now dull ache for three months. Examination shows considerable tenderness and spasm around right shoulder. Head of bone thickened. X-ray shows two distinct cavities in upper end of humerus. Cavities opened, cleaned, and packed with gauze. Healed in two months. Ten months later abscess recurred.

Resting Cases.

Case 13. Female, 38 years old. Duration, two years. Severe attack of pain over center of left tibia two years ago without cause. Many similar attacks since, coming on every three or four months. Examination shows slight thickening and tenderness over center of left tibia. Wassermann negative. X-ray shows an abscess cavity center of tibia masked by thickened cortex. Cavity opened and found to be lined with thick fibrous tissue and filled with serum. Curetted, cleaned, allowed to fill blood clot, and wound closed in layers without drainage. Culture sterile. Healed by first intention. Eighteen months later reports no symptoms. X-ray shows no cavity.

Case 38. Female, 23 years old. Duration 17 years. Several operations. Abscess of tibia when a child following a fall but no trouble now for many years. For some time has had repeated attacks of pain in center of tibia worse at night and after use. Last severe one three months ago. Examination shows right leg one-half inch shorter than left. Crest of tibia thick, particularly at center. Scar at ankle. No tenderness. X-ray shows marked eburnation of cortex with suspicion of abcess cavity at center of shaft. Cavity opened and found lined with fibrous tissue and containing serum and a small sequestrum. Cleaned, allowed to fill with blood clot, and wound closed in layers without drainage. Healing practically by first intention. Symptoms relieved and no further trouble nine months later. Culture sterile.

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INFECTIONS OF THE UPPER URINARY TRACT IN INFANCY AND CHILDHOOD.*

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It is an axiom among pediatricians that in children diseases do not differ in kind but only in course and manifestations from those that affect adults. These differences are conditioned by the immaturity and lower resistance of childhood, by the greater susceptibility of juvenile tissues to injurious processes, and also by their greater promptness and delicacy of reaction and their more active regenerative powers.

Particularly is this true with regard to surgical infections of the upper urinary tract, of the kidney and renal pelvis. Though less frequent, on the whole, in children than in adults, these conditions seem more likely to run an acute course, and are more liable to supervene without adequate apparent antecedent cause. The two conditions in which this is most typically true are acute pyelitis, and, to a less extent, acute unilateral hematogenous infection of the kidney. It is remarkable that neither of these conditions was recognized clinically or described in the literature until quite recently.

As early as 1883, Dr. Samuel J. Gee,[1] of St. Bartholomew's Hospital, London, reported in the *British Medical Journal*, "Some Kinds of Albuminous and Purulent Urine in Children." But though he was evidently dealing with con-

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ditions of acute renal infection, and even uses the term "spontaneous nephritis," he does not satisfactorily describe a definite clinical entity.

The earliest satisfactory clinical account of pyelitis in childhood is apparently that of Professor Monti,[2] senior surgeon of the Vienna Policlinic, in 1893. Without reporting specific cases, he describes accurately the clinical picture and symptom complex of the condition. The cardinal diagnostic signs which he recognized are fever, mental aberration, pain and tenderness, vomiting, pyuria and albuminuria, facial edema, and in chronic cases emaciation. He says little of etiology, considers the prognosis on the whole favorable, and regards rest, milk diet, and diuresis as the essentials of treatment.

In 1894 Dr. L. Emmett Holt, of New York, published[3] "Three Cases of Acute Pyelitis in Infancy." All had been characterized by suddenness of onset, pyuria, irregular pyrexia, and absence of local signs, except slight tenderness at the costovertebral angle. In none was there any local process, such as a balanitis or vulvovaginitis, as a source of origin for the infection, which Holt considers to have been probably hematogenous. This seems to have been the first definite description in English of this condition, the credit for whose clinical recognition and emphasis therefore is commonly attributed to Holt.

Essentially the same description is repeated in Holt's text-book[4] on "Diseases of Infancy and Childhood," in which he recognizes and classifies as the possible etiologic causes of pyelitis, renal calculi, congenital malformations, the exanthemata and acute fevers, and direct infection, either hematogenous, through the urethra, or by lymphatic extension from the intestine. For treatment he emphasizes the importance of aqueous diuresis, and the administration of hexamethylenamine with either benzoic acid or potassium citrate according as the urine is alkaline or acid. Surgical intervention is indicated only in case of the development of pyonephrosis.

In 1896, Wolfstein,[5] in an article on "Pyelitis in Infancy," in the *Archives of Pediatrics*, reports a case of pyelitis in a girl of sixteen months. He recapitulates the ground covered by Holt, adding to his recognized causes phimosis and vulvo-vaginitis, as forms of infection affording a starting point along the lower genital tract.

Baginsky,[6] in 1897, in his "Further Contributions to the Pathology of Renal Diseases in Childhood," reported four cases of pyelonephritis, of apparently idiopathic origin, in all of which a pure culture of colon bacillus was obtained from the urine. This observation introduces a new element in diagnosis, and suggests the possibility of the ascent of this organism from the genitals, or its passage by lymphatic extension from the intestine. The possibility of such absorption was definitely established by Marcus[7] in 1899, by experiments on rabbits. His results were essentially confirmed by Posner and Cohn[8] in 1900.

In 1902 Ritchie[9] of Edinburgh reported one case and Thomson[10] of Edinburgh eight, all following the general clinical type classically outlined by Holt. They believe the condition probably usually due to immigration of the bacillus coli from the bowel, and consider the essential of treatment to be alkaline diuresis. They believe that constipation and anal fissures are predisposing causes and should be treated, if present.

Even after the definite recognition and clinical description of pyelitis in infancy and childhood, its literature continued for some time to be scanty. In 1906 Heubner[11] reported a case in the chapter on pyelitis in his text-book of pediatrics, but laid no special stress upon it.

In 1908, Box[12] presented in *The Lancet* a clinical lecture on the subject, in which he considered most infections of the urinary tract in children to be due to the colon bacillus, and believed that their mode of approach to the renal pelvis must always be either hematogenous, by upward extension, or by direct lymphatic extension from the bowel. He was the first to report the use of colon vaccine in the treatment of obstinate cases, apparently with beneficial results.

A year later, in 1909, Thursfield,[13] in an article in *The Hospital*, on "Pyelitis in Children," recapitulates the subject to date, and reports several cases, which he divides into acute, subacute and chronic types. He declares the colon bacillus the commonest infecting agent, next to which is the pneumococcus. He also recognizes calculous and tuberculous forms of the disease, and those in which the posthitis associated with phimosis is apparently the exciting cause.

The latest available reference to the subject is that in a clinical lecture[14] by Herringham on "Acute Pyelitis," in which he reports one case in a child. In obstinate cases he employs an autogenous vaccine. This he believes relieves some of the symptoms, but does not alter the course of the disease or kill out the infection; and he considers that it is not without certain risks from anaphylaxis.

In addition to this review of the literature, and in further illustration of these infections of the upper urinary tract in children, I wish to report the following cases from the Surgical Clinic of the Children's Hospital, Boston. For the privilege of reporting these cases, I desire to acknowledge my grateful indebtedness to the members of the staff on whose services they occurred.

CASE 1. E. A. Female, 11 years. Entered Children's Hospital, Jan. 8, 1909. No. 1101.

The history and physical examination were such as to lead to a diagnosis of acute appendicitis, and at operation an appendix abscess, situated in the pelvis, was found and drained. Following this the child did well until Jan. 25 when the temperature rose to 102.8°. On Jan. 27 she suddenly developed pain, tenderness, spasm, and fulness, in the right costo-vertebral angle. The urine, since first operation, had shown the slightest perceptible trace of albumin. The diagnosis was made of acute second-

ary infection of the right kidney, and operation was advised and performed.

Operation. (Dr. Stone.) Examination under anesthetic showed a distinct fullness in the right costo-vertebral angle; incision made vertically through the muscles directly over the lower pole of the kidney; the tissues about the kidney were edematous but there was no pus; the kidney was enlarged to about one and one-half times its normal size; the capsule of the kidney seemed flabby: it was incised and the kidney underneath was found to be rather pale in color with yellowish spots, the largest lying on the inner side just below the pelvis and containing stringy, yellowish necrotic material, with a little pus. The handle of the knife could be plunged into the kidney without any resistance and caused absolutely no bleeding; a piece of the kidney was excised for examination; only a few drops of blood were lost; one cigarette drain was introduced into the wound; the other kidney could be felt considerably enlarged and also tender.

Following this operation the amount of urinary secretion remained for several days very low, but gradually rose to an average of 700 c.c. per diem. The urine was of low specific gravity, and contained a considerable sediment of small round and pus cells, but little blood and no casts. On March 2, the 24-hour amount of urea was 18.7 grams. There was still the slightest perceptible trace of albumin. The patient, however, was free from symptoms; and both wounds having healed, except for small granulating areas, she was discharged from the hospital.

This case, then, apparently represented an acute hematogenous infection of the right kidney, secondary to a focus of suppuration elsewhere, the renal symptoms supervening during the convalescence from previous infection.

Case 2. M. S. Female, 12 years. Admitted on Feb. 21, 1911. No. 2593.

Twelve hours before entrance patient had sudden onset of severe pain in the right lower quadrant of the abdomen. Vomited once. Temperature 100.6°. Pulse 96. White count 28,000; differential count showed 95% polymorphonuclears and 5% mononuclears. Urine contained no acetone or albumin. Physical examination showed some abdominal tenderness, but was otherwise negative. The patient was put to bed under observation, with a questionable diagnosis of appendicitis.

On Feb. 22 the tenderness and spasm seemed definitely localized over McBurney's point. T. 103°. P. 104. White count, 26,000. The diagnosis of appendicitis seemed probable, operation was advised.

Operation. (Dr. Homans.) An incision, two inches long, was made a little inside the outer border of the right rectus, rather high over the appendix region. The abdominal cavity was free from fluid. The appendix was free and easily found; it was tied off with chromic gut and removed, and the stump touched with carbolic and alcohol and buried with silk. An examination of the abdomen was made through the wound; nothing abnormal could be felt in the pelvis except considerable fecal matter in the rectum. The right kidney appeared normal in size and was movable. Nothing else could be felt in the way of enlarged glands, or any source of infection. The wound was closed with silk worm gut.

After operation, the temperature fell to normal and remained so for three days. It then rose to 103°, in the vicinity of which it continued without localizing signs of any possible cause therefor. On March 10, the urine was noticed to be smoky, alb. large trace, sp. gr. 1.028, acid, 24-hour amount 1200 c.c., sediment contains many erythrocytes and blood casts. There was tenderness over the left kidney. Operation was advised.

Operation. (Dr. Homans.) The child was placed on her face, with pad under the abdomen. An incision was made in the left loin just outside the quadratus lumborum. The kidney capsule contained very little fat. It was not thickened, and its relations to the kidney were normal. The kidney itself was large and rather flat; it was very flabby. The capsule appeared normal in color, perhaps a little pale. This was split from pole to pole, reflected part way over each surface. An incision about one-quarter inch deep was made in the kidney cortex, and the kidney substance showed nothing remarkable, unless it was a little more friable than usual. A cigarette wick was placed to kidney cortex, and the wound was closed in layers with interrupted chromic catgut, and the skin was closed with silk worm gut. The child stood the operation well.

Following the operation, the child made a steady convalescence, and was discharged on April 19 with both wounds healed and the urine normal in amount and free from blood and casts, albumin, s. p. t.

In this case the original condition is not clear. It was not appendicitis. The child probably had an obscure general infection, which ultimately localized hematogenously in the kidney.

Case 3. M. L. Male, 9 years. Admitted on March 17, 1911. No. 2645.

Three days before entrance, without previous history of injury, the patient began to complain of pain in the right hip. The attending physician states that the urine contained blood and albumin at this time.

Physical Examination on entrance. General condition fairly good. Cheeks flushed, eyes bright. Temperature 103°. Pulse of good quality, regular. Lungs: Clear and resonant. Abdomen: Negative. Kidney-area negative. No rigidity; no tenderness, no masses. About crest of ilium on the right side, just lateral to post. sup. spine, there is a definitely marked point of tenderness on palpation. This tenderness is deep and in relation to bone and not to soft tissues. There is also a general area of tenderness about the size of palm of hand just below post. sup. spine, also in relation to bone and not to underlying soft structures. Hip-joint is not involved; veins about ilium and joint are distended, knee reflex present on left, but absent on right side. No Babinski. No evidence of paralysis. Spine: Negative. Sacro iliac joint negative. Operation was advised on a diagnosis of acute osteomyelitis of the ilium.

Operation, March 18, (Dr. Stone.) A transverse incision was made from the middle of the iliac crest on the right downward towards the trochanter. It was carried through the fascia, and the underlying muscle was split parallel with its fibers. Beneath, an abscess full of brownish pus was opened. The periosteum was found to be dissected off the ilium over an area about one and one-half inches in diameter just beneath the epiphyseal line, and the epiphysis at the upper border of the abscess was found to be slightly separated from the ilium for a short distance so that the blunt dissector dropped

into the epiphyseal line. With a chisel, the ilium was then cut away beneath the epiphyseal line, and from the inner surface of the pelvis, there was a corresponding discharge of pus which lay between the ilium and the iliacus muscle. The abscess cavity apparently lay on each side of the ilium, between it and the iliac muscle on the inside, and between it and the gluteal muscle on the outside, and seemed to originate at the epiphyseal line between the ilium and the epiphysis along the crest. The ilium itself was very thin, containing practically no medullary cavity, so that it was impossible to tell whether there was or was not a true inflammation of the medulla. The bone was of about the thickness of the handle of an ordinary spoon. The bone was completely chiseled away throughout the area where the pus lay. This was roughly circular, and about one and one-half inches in diameter directly beneath the middle of the iliac crest. There was no evidence that the epiphyseal cartilage was involved in the disease, but the disease obviously went to the epiphyseal cartilage. Cigarette drains were inserted into the cavity. Culture of pus showed pure growth of staphylococcus aureus.

On March 21, after good recovery from first operation, patient developed tenderness over left ankle. W. C. 18,000. T. 103°.

Operation again advised. (Dr. Stone.) An incision was made over the anterior aspect of the lower end of the tibia, close above the ankle-joint. The incision was carried down to the bone. The periosteum was edematous, and the epiphyseal line was also edematous. With a small curette, a portion of the epiphyseal line, which seemed most inflamed, was curetted away. A small gauze drain was inserted. This operation was done within twenty-four hours after the first signs of inflammation in the tibia. No pus was found, but definite inflammatory reaction was found.

Following this operation, the patient's urine became on March 27 bloody, and, 1,015, diminished to 500 c.c. in 24 hours, and contained white blood cells, casts, and a slight trace of albumin. This condition gradually subsided under aqueous diuresis, and the patient was discharged on April 11 with wounds still draining, but urine nearly normal. He returned twice in the next two months with recurrent suppurations in the ankle, but was finally discharged on June 21 with the wounds nearly closed and the urine practically normal.

This case represents a primary osteomyelitis of the ilium, with metastatic epiphysitis of the tibia and acute metastatic, probably hematogenous, nephritis.

CASE 4. S. H. Male, 7 years. Admitted on April 3, 1911. No. 2671.

Ten days before entrance patient began to have pain in the right side of the abdomen. This has increased, but there have been no nausea, vomiting, or disturbance of micturition. The child has had increasing lameness in the right leg. Six weeks ago he was circumcised for phimosis and balanoposthitis.

Physical Examination. Head and throat negative. Chest well formed. Lungs negative on auscultation and percussion. Heart: Negative on auscultation and percussion, except very well compensated mitral insufficiency. Abdomen: Rounded. Liver dullness extends from costal margin in nipple line. Slight spasm on right abdomen, and considerable spasm of right flank. Tympanitic except in right flank. Area of dullness and tenderness in right flank extending from a line connecting anterior superior spine with costal margin just lateral to nipple line and running into liver dullness. The right thigh is held in partial flexion by psoas spasm, with pain on extension, but when the thigh is in flexion, the hip motions are free in all directions with no pain. Extremities are otherwise negative. Urine: High, acid, 1.020. No sugar. Slight trace of albumin. No acetone. Sediment contains some pus and blood, with many hyaline, granular and epithelial casts. T. 103°. P. 130. R. 40. White count 60,000.

Under rest in bed, with aqueous diuresis the abdominal mass and tenderness practically disappeared, the white count fell to 35,000 on April 11, the amount of urine rose to normal and there ceased to be blood in the urine. On April 20, x-ray showed a suggestive shadow in the right kidney region. The tenderness in the right lower quadrant then gradually increased, and on April 24 operation was advised.

Operation. (Dr. Stone.) An incision was made parallel with the fibers of the external oblique, about two and one-half inches long and about one inch vertically above the anterior superior spine. The external oblique was incised parallel with its fibers. The internal oblique and transversalis were split along their fibers, and the edges of the muscles retracted. The peritoneum was incised, exposing the outer side of the cecum, and apparently loops of lower small intestine firmly matted together inside the wound. On separating the coils of intestines, a small amount of grumous pus was set free. The appendix was then found on the outer posterior aspect of the cecum, directly under the wound. It was about one and one-quarter inches long; the lumen about one-sixteenth inch thick, and the walls about three-sixteenths inch thick. It was very densely matted down. It was ligated and excised, and the stump was touched with crude carbolic and alcohol. Three cigarette drains were inserted, one outside the cecum upward, another outside the cecum towards the brim of the pelvis, and the third directly in the flank at the stump of the appendix. Culture from the appendix showed no growth.

After operation, the temperature fell rapidly The wound drained considerably. The urine cleared up rapidly, and was nearly normal when the child was discharged, on May 3, with a small sinus in wound.

In this case there was apparently an acute inflammatory nephritis and pyelitis, following, and perhaps dependent on, a balano-posthitis. The early symptoms were those of an acute pyelonephritis, followed later by acute appendicitis. The child recovered completely after removal and drainage of the appendix.

CASE 5. R. P. Male, 3 years. Admitted on April 15, 1911. No. 2706.

Four weeks before entrance, patient had pneumonia, followed by failure of temperature to remain normal. Five days ago, four ounces of green pus were withdrawn from the chest by aspiration.

Physical Examination. Well developed and nourished little boy. Pale, not extremely sick. Pupils equal and react. Mouth and throat clear. Anterior cervical glands felt on both sides. Chest: Well

formed. Expansion good on right, but poor on left. The right lung is resonant throughout; no râles. The whole left lung, to apex, is flat on percussion. Breath sounds heard, but distant and tubular. Heart: Pushed to right; dullness extends five cm. each side of mid-sternal line. Sounds clear, regular; no murmurs. Abdomen: Soft, tympanitic. No masses or tenderness. Extremities: Negative. No paralysis or edema. Knee-jerks not obtained.

Urine: Normal in appearance. No sugar or acetone. Albumin: s. p. t. Operation was advised.

Operation. April 17, 1911. (Dr. Stone.) An incision was made over the eighth rib in the posterior axillary line, carried downward to the bone. The periosteum was reflected and one and one-quarter inches of rib was resected, with an escape of thick pus, with a small amount of fibrin, but the fibrin was uniformly distributed over the parietal and visceral surfaces of the pleura. The lung expanded well, and a drainage button was inserted. Smear from the pus showed many pneumococci.

Two days after operation, the urine became smoky and contained a trace of albumin and many casts. This, however, cleared up under rest in bed and aqueous diuresis, and on May 3 the child was discharged with the wound still draining.

On May 25, he was readmitted with fever and recurrent dulness in the chest on the left side. On May 27 the wound broke down and the sinus was dilated with the evacuation of considerable pus. The child's condition improved steadily and on June 14 with the sinus healed, lungs clear, but the urine still containing some albumin, pus, and granular casts, the patient was discharged.

This case seems to have been one probably of acute inflammatory nephritis consequent upon empyema following pneumonia.

Case 6. M. G. A girl, 12 years old. Entered April 23, 1912.

Family History. Father, mother and six children living and well.

Past History. Diphtheria, whooping cough and measles.

Present Illness. Two weeks ago patient began to complain of pain in left side of chest and abdomen. Did not feel well enough to play about. Complained of feeling chilly three to four times during day and mother states that child had quite severe chills. Has not vomited. Bowels regular. Frequent urination, especially at night.

Physical Examination. Well developed and fairly well nourished. Eyes: Pupils equal and react to light and distance. Tongue coated. Throat normal. Heart regular, no murmurs. Lungs: Resonant throughout. Abdomen: Tenderness and voluntary spasm from costal margin to pelvis. No real spasm. Extremities: No spasm or limitation of motion about hip. Tender along outside of thigh. K. J. and feet normal. Temperature 101°. Pulse 120. Urine: Acid. Albumin. Sug. 0. Blood: W. B. C. 24,000. Operation was advised and accepted, Aug. 24, 1912.

Operation. (Dr. Stone.) Vertical incision about two inches long in the loin over the most prominent part of the abscess, just below the level of the last rib and about three inches from the spine. Incision carried through the muscles into the abscess cavity, free discharge of thick pus. Abscess was found to lie next to the kidney, but lay below, behind and outside the lower pole of the kidney and above and outside and in front of the upper pole. In the lower location there was a considerable pocket of pus, directly beneath the wound, there was an area in the kidney itself of necrotic broken down kidney-tissue and pus about as big as the last joint of the forefinger. This led directly into the kidney. Two rubber dam cigarette drains were inserted, one to the lower and the other to the abscess cavity around the upper pole of the kidney.

The patient made a good recovery from ether. There was slight discharge from the wound for many days, and patient finally went home on Sept. 17, 1912, with a presistent lumbar sinus.

From the foregoing cases, and from the literature, the following conclusions seem justified:—

1. In infants and children infections of the upper urinary tract, though infrequent, are likely to occur without adequate apparent antecedent cause.

2. Their onset is acute, their clinical picture definite, their recognition often missed on account of their simulation of other infectious conditions.

3. Their two most usual forms are acute pyelitis and acute inflammatory nephritis.

4. The latter is most usually hematogenous in origin, the former probably proceeds by lymphatic extension from the intestine.

5. Predisposing causes are calculi, constipation, phimosis, anal fissures, and foci of infection elsewhere.

6. The classic signs of both are pyrexia, pyuria, and tenderness in the costovertebral angle.

7. Differential diagnosis depends on examination of the urine.

8. The treatment consists in rest, milk diet, aqueous diuresis, moderate catharsis, urotropin, with sodium benzoate, potassium citrate, or vaccine, in obstinate cases; surgery, only as a final measure.

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THE VIEWS OF PLATO AND FREUD ON THE ETIOLOGY AND TREATMENT OF HYSTERIA: A COMPARISON AND CRITICAL STUDY.*

BY J. W. COURTNEY, M.D., BOSTON.

The history of the so-called neuroses and psychoneuroses begins, from a documentary standpoint, with the most ancient medical and philosophical writings. Indeed, the old Greek philosophers in particular found in morbid nervous and mental phenomena a most fascinating

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field for speculation. And their writings abundantly prove that they indulged in this pernicious habit to their heart's content.

The use of the word "pernicious" in connection with the speculative habit seems to me entirely justified when we consider that the latter has been indulged in by every philosophically-inclined writer on the subject of functional nervous disorders from Plato down to those of our own times, and has done more to obscure our understanding of the pathology and treatment of these disorders than any other factor.

It seems, I admit, a very far cry from Plato to Prof. Sigmund Freud, but when I have exposed to you their etiologic views on hysteria, I think you will agree that, in essence, these views are practically identical.

Plato,[1] dealing with the causation of the psychoneurosis in question, expresses himself as follows: "The womb is an animal which desires ardently to engender children. When it remains sterile for a long time after puberty, it endures this state with difficulty; it grows angry, rushes here and there through the body, obstructing the air passages, hindering the respiration, throwing the body into extreme dangers and occasioning divers maladies, until desire and love bringing together the man and the woman create a fruit and cull it as from a tree."

The idea of the uterus rushing angrily hither and thither through the body, causing now the "globus," now a syncopal attack, now some other of the well-known hysterical manifestations, is interesting as a measure of the advance made by modern pathology in certain directions. It has no bearing upon the theme about to be developed.

What I wish to call to your attention particularly is that part of the theory which deals with the mental and emotional attributes ascribed by Plato to the uterus and considered by him as the *vis a tergo* which impelled it upon its antic courses. These attributes, as already indicated, consist, on the one hand, of intense strivings, desires and impulses on the part of the uterus to get itself fecundated and, on the other, of anger and other violent emotions aroused by delay or failure in the accomplishment of its designs.

The transition from this Platonian theory of etiology to the Freudian is simple. As I hope presently to show you, Freud simply shifts the above-mentioned attributes to their real sphere —the mind—and assumes an unconscious but stormy conflict among them as the cause of the outbreak of hysterical symptoms.

To paraphrase the language of the Freudian pathology, there is waged in the mind of the victim of hysteria a conflict between two groups of ideas or mental processes which cannot be brought into harmony with each other. One complex of mental processes is, for some reason or other, of such a kind as to be inacceptable to the main body of the personality. The personality fails to assimilate it, will have nothing to do with it, tries to forget it, to submerge, to repress it. The repressed complex then takes on an automatic existence and acts as an irritating foreign body in the same way as any foreign body that has not been absorbed.

And now for the first of the many paradoxes with which the theory teems: It appears that the order of activity assumed by the defectively assimilated complexes—which generally take the form of strivings, desires and impulses—is usually a very low one, of an automatic and almost reflex kind and is, in a word, *unconscious*, that is to say, it operates without the subject being aware of it.

There remains for us only to examine into the content of these strivings, desires and impulses which, entirely apart from the patient's awareness, metamorphose themselves into clinical symptoms. And as nearly as one of ordinary intelligence and understanding can gather from the writings of those best qualified to interpret the Freudian doctrines, it appears that the strivings, desires and impulses which work such havoc outside the field of the patient's awareness, are the outcome of the unconscious cerebration which subtends the most natural of all human feelings—namely, the *libido* or craving that actuates everyone to do his share in the great work of the propagation of the species. In a word, the outcrop of hysterical symptoms is—according to Freud—the result of an unequal battle between the patient's *unconscious* desires and impulses and his equally unconscious but rigidly censorious mind.[2]

If you have succeeded in following the above clear and uninvolved exposition, you have before you the two theories. To my way of thinking, they differ mainly in the time of their appearance. Personally, I favor the Freudian—it is so much more restful and soothing to fancy a noiseless conflict between a sexual (but not necessarily sensual) longing and a mental censor (both unconscious) than it is to picture a brutally lustful uterus running amuck through the body.

Modern pathology is in itself a sufficient refutation of the etiologic portion of Plato's theory. A very little close reasoning should serve to dispose of Freud's. My first objection to it is that it is absolutely arbitrary, in that it takes into account one element only of the many which compose that very complex product called personality. My second objection is that it is entirely illogical. Obviously, from what has been said, it looks upon the symptoms of hysteria as voluntary on the part of the sufferer, *i.e.* a sort of compromise between unconscious sexual desire, longing and striving, and the repressive activities of a likewise unconscious mind. Hence, it asks us to believe that a voluntary act may at the same time be an unconscious one—in other words, that the will can operate without the conscious mind being aware of its operations. Now, even a moment's consideration shows us that if we take away all sensations and emotions there can be no will, and the ab-

surdity of the Freudian contention becomes at once apparent.

There are numerous other objections to the theory, but the two given render enumeration of the rest practically superfluous. One, however, I will mention because it applies not only to the theory in question but to many others. It is to the effect that they all locate the patient's trouble entirely within the realm of ideation and emotion absolutely without regard for the fact that the way human beings feel, talk and act is but a reflection of organic sensation. In other words, they deal with the language, actions and emotions of the psychoneurotic quota of humanity as a pure abstraction, without regard for their organic source.

It is—or should be—a matter of common knowledge that, in the great majority of cases, the psychoneurotic comes into the world with the seeds of his disorder firmly implanted in his nervous system. With rare exceptions, his ancestry—either immediate or remote—is primarily to blame for his unhappy lot. Ancestral insanity, nervousness, tuberculosis, syphilis, gout, alcoholism or some other devitalizing agent paves the way for his downfall; environing circumstances do the rest. His nervous tissues are as prone to functional over-exhaustibility as the lungs of the offspring of consumptives are to the invasion of the tubercle bacillus.

We come now to the therapeutic aspects of the two theories under consideration. According to Plato, we should expect to see all symptoms disappear when the angered and consequently antic uterus receives the fecundating seed it so ardently desires. The Platonian notion is intelligible and naïf; the Freudian possesses only one of these qualities.

The last-named system of therapeutics is known to the scientific world as *psychoanalysis*. To pursue it with success requires, we are credibly informed,[3] three years' incessant practice—a good previous knowledge of neurology being assumed. But let not this fact dismay you. According to information from the same reliable source, brilliant results are sometimes obtained in a given case by a single hour's use of the method every day for three years. This is particularly true where both the patient and the physician are versed in Greek and Roman mythology, classical Greek poetry, legend and tragedy, folk-lore and song.

You may be puzzled to know why so much time is required both to learn and to practice psychoanalysis. The answer is simple: Just bear in mind that the hysteric's symptoms are due to a conflict between his sexual strivings, desires and impulses and his censorious *unconscious* mind and that, in order to check the battle, we absolutely must know just how it started.

To achieve this knowledge we are compelled to go back to a very early moment in the infantile period of his career, *i.e.* to the suckling stage. Then it is, we are told by Freud and his disciples, he first becomes aware, through the medium of his *unconscious* mind, that he is the possessor of sundry orificial erogenous zones, and this discovery causes to spring into existence certain of those sexual strivings, desires and impulses which lead to conflict in the unconscious mind, and ultimately—anywhere from fifteen to thirty years later—to the appearance of hysteria.

In this work of investigation you must have the patient's co-operation. You must make him conscious of the sexual significance of his striving, longings and desires, of which, of course, he, up to this time, knows nothing. To do this you have merely to let him introvert his attention deeply enough to tap the unconscious, encouraging him in every way to let his imagination run riot on sexual matters of every conceivable kind from sodomy to incest.

As a supplementary means of getting at the naked truth you must even follow the patient into slumberland, since it is par excellence in dreams that the sexual nature of the havoc-working unconscious strivings, desires and impulses reveals itself.

Let me hasten to caution you, however, that the sexual content of the dream is practically always latent and that it requires an absolutely unbridled imagination on the part of the investigator for its discovery. As I shall presently show you by citations from the literature, it is really in the world of dreams[4] that Freud and his followers have gathered their richest harvest.

Just how analysis of the unconscious waking or sleeping mind brings about a cure, I do not comprehend. The Freudian contention is that it leads the patient to a greater and nobler understanding of his character and enables him to suppress or to utilize upon a more exalted plane of activity his sexuality. Presumably this does away with the unconscious strife which caused his psychoneurosis.

To make the Freudian theory quite clear in all its details, let us take a concrete hypothetical case. Let it be that of a recently widowed mother. We will say that during the long illness which preceded her husband's death she was seldom absent from his bedside—day or night; that during this time her own physical needs received from her but scant attention; that little reached her senses but the sights and sounds of the sick chamber and that the one anguished query that occupied her mind for weeks was, "Will he live?" Let us add to all this the despair which came with the knowledge that recovery was impossible and the grief, too deep for words, that followed the fatal termination.

Let us add further that hardly is her husband buried when her only child is stricken with a serious illness which for a long time baffles the understanding and skill of the attending physicians and consultants. At last the nature of the disorder is discovered, but with the discovery the hopes which buoyed the mother before the real diagnosis was made, are forever dashed—the malady is a fatal one.

Should this poor woman, thus bereft of husband and son, come to you for treatment for a profound hysteria you would naturally assume that her trouble was the result of the anguish of mind and the physical overstrain incidental to the sickness and death of husband and son. But if you were of the Freudian school, you would absolutely distrust these apparent causes and resort to psychoanalysis to find out what was really at the bottom of the patient's hysteria. By means of this method you would discover that while she was still at her mother's breast her unconscious mind discovered that her mouth was an erogenous zone, that this discovery led to unconscious sexual longings of a perverted order and that the struggle between desire and repression—likewise unconscious—finally led to the hysterical outbreak.

If the patient chanced not to be troubled by insomnia you would undoubtedly get considerable aid in establishing the etiology from an analysis of her dreams, for, according to Freud, the dreams of an hysterical person are often symbolic of such practices as incest and Lesbian love.

When you had employed your psychoanalytic methods with care and diligence, you would inform your patient fully of your findings concerning her sexuality and you would then confidently expect to see recovery soon follow upon the realization that her nervous suffering was the result of the struggle made by her virtuous unconscious mind to keep her from becoming a sexual pervert and a criminal.

I have promised you citations from Freudian literature in order to show the paramount importance of the rôle played by dreams in psychoanalysis. The lateness of the hour makes the present introduction of this topic particularly appropriate. My citations will, however, not be extensive.

In the *Zentralblatt für Psychoanalyse*, Part 9, p. 408, Rank gives an analysis of a "toothache" dream which confirms Freud's view that such dreams relate to masturbation. Part 12, p. 586, contains a lucubration by Robitsek (Die Stiege, Leiter als sexuelles Symbol in der Antike.), which proves by evidence from archaeology (sic) that the doubt cast on Freud's interpretation of the occurrence in dreams of climbing steps or ladders as a symbol for coitus is entirely unwarranted.

But enough from dreamland! I cannot, however, resist the temptation to lay before you one or two more examples from this literature. In the same *Zentralblatt*, Part 5-6, p. 200, Sadger maintains that asthma, neurotic edema, membranous colitis, etc., are not, strictly speaking, of psychogenic origin, but are instances of the condition termed by Freud "sexual neurosis," and that physical predisposition (of a sexual nature) plays the essential part in the etiology. Stekel, Part 7-8, p. 328, gives an analysis of a case of writing-stammering, a term used to denote a symptom in regard to writing that has every analogy with stuttering of speech, and clearly shows that this symptom consists in a sexualization of the act of writing and represents a mental equivalent of psychic impotence(!). Finally, Eibenschutz, Part 5-6, p. 242, skilfully analyzes a striking occurrence where a philological authority had read the wrong date of a passage (MCCCL instead of MDCCCL), with a consequent confusion in his judgment. (The discovery in this case, by psychoanalysis, of what led to the confusion in judgment, is one of the most remarkable recorded in Freudian annals. I know of nothing accomplished by a certain learned Society, whose transactions have been handed down to posterity by Charles Dickens in his famous Mudfog Papers, that is in any way worthy of comparison with it.)

In closing, I assume that the Freudian theory and doctrines have never caused the faintest ripple upon the placid surface of the practice of any one of my listeners; and I predict that they never will. Nevertheless, it is just as well for you to know to what esoteric tenets in psychopathology and psychotherapeutics the speculative habit, without a background of sound physiologic principles, may lead. How much it has added to our therapeutic efficiency I leave to the dicision of time.

Some of us seem to forget, not temporarily, but permanently, that there is an Art to Medicine as well as a Science, and that we are bound by the Hippocratic oath to cure our patients "safely, swiftly and pleasantly." To the middle term of this pact we cannot—in the case of the psychoneurotic—strictly adhere. To the other two terms we can always be faithful if we take common sense as our guide and are not lured away by therapeutic schemes evolved from academic subtleties.

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Medical Progress.

REPORT ON DERMATOLOGY.

THE PROPER USE OF SALVARSAN AT THE PRESENT TIME.—CURE OF FRAMBESIA BY SALVARSAN.—LUPUS TREATED BY SALVARSAN-TUBERCULIN.—NEOSALVARSAN.—TREATMENT OF URTICARIA WITH EPINEPHRIN.—ARSENIC AS EMPLOYED IN DERMATOLOGY BY THE GENERAL PRACTITIONER.

BY JOHN T. BOWEN, M.D., BOSTON.

THE PROPER USE OF SALVARSAN AT THE PRESENT TIME.[1]

Brocq, after an extensive experience of more than two years' duration, considers that salvarsan and neosalvarsan are very efficient in syphilis and ought to be employed whenever possible

at the beginning of the disease, in as large doses as are compatible with the tolerance of the patient, in order to endeavor to destroy the organisms at the outset. They *may* be employed with advantage in the course of the disease, whether in the secondary or tertiary period, especially when mercury alone or in conjunction with the iodide is ineffective or is not tolerated. The question to decide at the present time is whether there are not serious disadvantages in the use of these substances and whether or not they ought definitely and completely to supersede mercury and the iodides in the treatment of syphilis. This question is unfortunately not so easy to decide as might appear from the brilliant results that are matters of common knowledge. A sufficient number of cases have not yet been treated, and a sufficient number of years have not yet elapsed, to warrant us in affirming that we know at the present time just what the disadvantages of this treatment may be, nor in predicting what will be the future of the syphilitics so treated.

With regard to patients in the secondary stage, Broeq's opinion is that it is not *indispensable* to treat all such cases by means of the new methods, in view of the fact that we were in the habit of considering the older methods as very efficacious. Whether they are *useful* in all such cases, with the exception of those that present obvious contraindications, is a question difficult to decide. He is inclined to think that it is advantageous to give salvarsan (or neosalvarsan) in at least a certain number of injections, in (1) every case of secondary syphilis that has not been previously treated, (2) every case of secondary syphilis that, having been previously treated by mercury, still shows active signs, and (3) every case of secondary syphilis that after being treated, both by salvarsan and mercury, still exhibits rebellious or recurrent manifestations of the disease. In cases of secondary syphilis with no active signs, and in good condition, he inclines to think that salvarsan should not be given, even with a positive Wassermann, as he is not yet convinced that this treatment is absolutely harmless.

With regard to tertiary manifestations he does not think that at the present time there is any real advantage in employing salvarsan rather than the older methods, in the larger part of the cases of cutaneous and mucous membrane lesions, although it may be used where there are no contra-indications. In the case of rebellious lesions it may be used with advantage, and in grave destructive lesions it should be used at once.

CURE OF FRAMBESIA BY SALVARSAN.[2]

C. A. Koch of Surinam in a communication to the Berlin Medical Society of October 23, 1912, sums up his experience with this treatment in South America. Frambesia or yaws was brought to South America from Africa by the black slaves. It is caused, as is well known, by a spirochete, which differs only slightly from that of syphilis, morphologically. The disease itself is also very similar to certain of the forms of syphilis, so that it has in the past been considered identical with syphilis by some authorities. It has, like syphilis, three stages, a primary lesion, a small papular exanthem with typical manifestations, and in the third stage pains in the joints, chronic ulcers, etc.; but differs from syphilis in that all these stages are frequently observed simultaneously in the same subject. Typical lesions have a diameter of 15-25 mm. and may form large granulating surfaces, which give rise to a purulent secretion. Later, after the crust has disappeared a fungous, papillomatous excrescence is produced, which has given rise to the name of the disease. In Surinam the infection is usually caused by direct contact, and the clothing is often the means of dissemination. Koch, who has been twelve years in Surinam, says that despite strenuous efforts at isolation and disinfection, the disease has progressed steadily so that it was necessary to enlarge the frambesia hospital. Mercury, iodide, and the popular local remedies were powerless against the disease. The time of remaining in the hospital was on the average a year, and he often had 400 and more patients at a time. As soon as salvarsan was introduced, Koch tried it in this disease with the most astonishingly good results from the first. The first effects were noted six days after the first injection and in fourteen days the first cases were almost completely healed. On the 25th of May of the preceding year the treatment with salvarsan was begun with 328 patients, and in three weeks the last patients were dismissed and the hospital closed. The hospital building was considered unnecessary and was appropriated to other purposes. On the whole 1200 patients were treated with salvarsan during the first nine months of the previous year. Among them were ten recurrences or reinfections. The first twenty cases were treated intramuscularly; the rest, with the exception of children under two years, intravenously. The paper was illustrated by pictures of different forms and localizations of frambesia lesions. This especial work was instigated and furthered by Ehrlich; and the writer justly claims the interest of the profession in a method of treatment that is capable of healing in fourteen days a severe disease which had previously had an average course of a year.

LUPUS TREATED BY SALVARSAN-TUBERCULIN.[3]

Herxheimer and Altmann in 1911 found by chance that salvarsan produced a reaction in tuberculous tissue. It was first observed in syphilitics who had tuberculous lesions. Six cases of lupus vulgaris of the face and extremities were then treated with salvarsan, with the result that there followed a typical reaction in the lupus tissue, with all the clinical signs of an acute inflammation that appeared to be very similar to the tuberculin reaction. Two theories for this

reaction were advanced: one that the salvarsan had a destructive action on the tubercle bacilli, setting free tuberculin, which was diffused in the surrounding lupus tissue, thus causing the reaction; and the other that the reaction was due to a primary influence on the cell elements of the miliary tubercle. Later Herxheimer and Altmann experimented with a parallel treatment by salvarsan and tuberculin. Bernhardt[4] reports six cases treated by him by the Herxheimer-Altmann method, using both tuberculin and salvarsan. The best results were obtained in the cases of ulcerated and serpiginous lupus. There was a remarkably rapid cicatrization of the lupus ulcerations, especially of the more superficial ones, and the view is expressed that so quick a result can be attained by no other method. There was also a quick absorption of the lupus infiltrations, which was most pronounced in the first half of the time of treatment. There was a much less marked therapeutic effect from this method in cases of non-ulcerated lupus. This method had also a very marked effect on the course of lupus of the mucous membranes A complete healing was attained in a short time without any local treatment. In these experiments arsenobenzol was used intravenously in doses of 0.30, at intervals at first of 9-12 days, later once a month. The tuberculin was used in active doses in the intervals between two administrations of salvarsan.

The conclusions are that the salvarsan-tuberculin method in lupus vulgaris gives the best relative results in the ulcerated forms, causing a rapid cicatrization. That the action of this procedure on the lupus tissue is very evident, many infiltrations disappearing completely, others undergoing a partial absorption. That the Herxheimer-Altmann method should be added to those that have been shown of approved value in the treatment of lupus, but that it should be intelligently combined with other methods.

NEOSALVARSAN.[4]

At the November, 1912, meeting of the French Society of Dermatology and Syphilis, Leredde reported his studies of the accidents from neosalvarsan, the technic, and the strength of the injections. He considers that it has now been abundantly proved that most of the dangers from salvarsan are either wrongly attributed to it or are due either to faults of technic or to a disregard of formal indications. Salvarsan is dangerous only in the hands of physicians who employ it without having learned its use thoroughly. The technic of the injections has been settled, while the question of dosage remains still a matter for study. Leredde counsels a gradual, progressive increase in the amount injected. He lays stress on the fact that prudence should be exercised in the treatment of patients afflicted with "simple" ulcers of the stomach and duodenum, as these ulcers may be syphilitic, and death be caused by Herxheimer's reaction, following too energetic treatment at first, as is the case sometimes with those who have a latent syphilitic meningitis. Should neosalvarsan be substituted for salvarsan in the treatment of syphilis? The preparation of the injections is easier, and this in itself removes certain possible causes of accident. Also a larger amount may be injected. But since the introduction of neosalvarsan certain accidents, sometimes of a serious nature, have been met with, which were not reckoned with in the earlier periods of salvarsan therapeutics, so that a number of Germans and Belgians have abandoned neosalvarsan and returned to salvarsan. Leredde does not agree with these latter. He considers that a large number of the accidents from salvarsan, particularly the paralyses, are explained by a peripheral neuritis. By a closer study of the causes of the accidents from neosalvarsan, as of the accidents from salvarsan, the means of avoiding them will be better and better recognized, and in this way a judgment may be formed as to which of the drugs is less dangerous. As to neosalvarsan, the period of experimentation has not yet exceeded six months and is, therefore, by no means concluded. The technic which was originally recommended by Schreiber is most dangerous, more by the frequency of the injections than by the size of the dose, and should be completely abandoned. The solution of neosalvarsan, prepared antiseptically with distilled water, sterilized after distillation, should be immediately injected into the veins without useless exposure to the air. The injections should be separated in every case by a minimal interval of five days. The doses should not be, on principle, larger than the corresponding doses of salvarsan. If one desired not only to heal the lesions but to attain a sterilization of the syphilis in a way both prudent and energetic, Leredde advises his method of progressive dosage. At the outset of the treatment successive injections, at intervals of five days, are to be made of 0.30, 0.60, 0.90 neosalvarsan; in a later series 0.60, 0.90. Larger doses should be exceptional and reserved for cases of rebellious nerve syphilis, in which normal doses have previously been well borne. The contra-indications of neosalvarsan are the same as those of salvarsan. Neosalvarsan is dangerous in non-syphilitic nephritis, and in degenerative lesions of myocarditis. In excessively alcoholic subjects it may also be dangerous, on account of latent changes in the liver. It should be used with great caution, and in slowly progressive doses, in patients with simple ulcers of the stomach and duodenum, or with ulcerative lesions of the larynx. It may be used in tabetics in the cachectic period or in advanced general paralytics, but in these latter cases, as well as in those where there are signs of uremia or an asystolic tendency, the justification of the procedure lies in the extreme gravity of the cases.

At the same séance of the Society, Darier presented an elaborate report of two cases of death

after injections of neosalvarsan, with a critical review of analogous cases. One of these cases was the subject of a tertiary syphilis, the other was in the secondary period; both had been treated with mercury recently and thoroughly. In the course of a series of intravenous injections with neosalvarsan they were seized, after the third injection, with nervous phenomena of a very serious nature. In the first case, that of a vigorous man, without any organic trouble, the accidents occurred in the course of the third day after the injection and resulted in death in nineteen hours. In the second case, that of a weakly, tuberculous, and albuminuric subject, with a malignant ulcerative lesion of the pharynx and a double iritis, the nervous phenomena began fifteen hours after the injection, continued for three days in a very exaggerated form, then quickly subsided, to be followed in five days by a fatal tubercular bronchopneumonia. The clinical symptoms in the two cases were almost exactly similar; a sudden seizure with epileptiform convulsions, succeeded by a deep stupor, bordering on coma. Nothing of great importance was found at the autopsies. Darier then enters upon a discussion of the probable pathogenesis of these nervous phenomena with a view to avoiding them, if possible, in the future. He concludes that the only plausible explanation is in the supposition that in some cases at least there is a retention of the drug, on account of decomposition and faulty elimination. After reviewing the cases of serious or mortal injury following the use of salvarsan, he sums up his conclusions as follows: *Conclusions.* Although neosalvarsan is not generally toxic in the mild doses usually employed, it must be borne in mind that its use is not unattended with danger Neosalvarsan appears to be on the whole more dangerous than salvarsan. In a not inconsiderable number of cases, neosalvarsan may produce dangerous nervous phenomena, especially encephalomyelitis and progressive neuritis of arsenical type. In very exceptional cases death has ensued under such conditions that an acute arsenical intoxication may be fairly assumed to be the cause. These accidents are probably owing to an accumulation of the drug, following its decomposition in the organism and insufficient or retarded elimination. At the present time it is not possible to avoid these accidents surely by any known means or precautions, but the following rules are recommended for adoption: (1) Eliminate all subjects who present any visceral signs, and especially those in which there is any suspicion of an affection of the kidneys or liver. (2) Always begin with a minimal dose of .20 to .30 at the most, and increase this dose with great caution. (3). Never repeat the injections at an interval of less than five or seven days at the least, or without being sure that the first injection was not followed by any symptom of intolerance, or that the urinary elimination of arsenic has been normal.

At the meeting of the same society on Dec. 5, 1912, Goubeau reported a case of late accidents following a treatment by neosalvarsan aggravated by application of a paste of zinc oxide. The subject was a man of 42, without any sign of organic lesions. He was given four injections of neosalvarsan between the 24th of September and the 11th of October. On the 20th of October there was an attack of general urticaria with severe itching. On the 3rd of November the patient was found confined to his bed with an intense desquamative scarlatiniform dermatitis, with affection of the mucous membranes. There was scarcity of urine but no sugar or albumin. Upon questioning it was found that at the beginning of the present attack he had been covered from head to foot with a paste of oxide of zinc, and that after these applications the skin got worse and assumed the character of a scarlatiniform dermatitis, accompanied by fever, digestive disturbances and symptoms of general gravity. Death took place on November 7. The belief expressed was that the patient died of arsenical intoxication due to the suppression of the eliminating functions of the skin by the use of the zinc paste. This opinion is fortified by some experiments made upon animals. Hence the conclusion is reached that in the case of all patients treated with salvarsan or neosalvarsan it is important that the functions of the skin should be in good order; this may be attained by exercise in the open air before the injections, by hydrotherapeutics, massage, etc. It is also important in such cases, as well as in those affected with toxic or infectious erythemas, and whenever from any cause the renal functions are insufficient, that the greatest care should be taken to avoid the application over large surfaces of thick pastes and occlusive dressings.

TREATMENT OF URTICARIA WITH EPINEPHRIN.[5]

Swann of New York publishes the results of the administration of epinephrin subcutaneously in six cases of urticaria. In all of these cases this treatment was followed by a rapid disappearance of the erythema and wheals. The preparation used was the 1-1000 adrenalin chloride solution given in a dose corresponding to 8 minims for an adult of 140 lbs., this dose being repeated in 10 minutes. The eruption disappeared constantly after the second dose; an improvement was seen 8 minutes after the first dose, became most marked in from 10 to 20 minutes, the eruption then disappearing with startling rapidity. There was no itching in from 5 to 20 minutes after the first dose.

Recurrences in these cases were apparently uninfluenced. The writer was not present in any instance where the rash re-appeared, so that he could not test the treatment again under these circumstances. Whether or not repeated doses will relieve the condition for a longer time will be an interesting subject for study.

The rapid disappearance of the wheals in these cases is interesting in connection with recent studies of epinephrin which have shown by experiments on excised peripheral arteries that contraction occurs when they are treated with high diluted solutions of epinephrin, and that the degree of this contraction depends on the amount of contraction of the vessels when the treatment is given, the contraction from the treatment being much greater when the vessels were previously relaxed.

This remarkably speedy effect on the wheals of urticaria suggests its use in more serious conditions, notably those of angioneurotic edema, in which edema of the epiglottis and glottis may endanger life. Here it is quite conceivable that epinephrin might act in the same prompt manner as it does upon the wheals in urticaria. Anaphylaxis with bronchial spasm and edema is another case in point. Epinephrin has been shown to be capable of relieving the asthma of anaphyalxis. It has also been suggested that epinephrin could be used as a diagnostic test to differentiate vasomotor eruptions from those of different origin, such as a serum erythema from that of scarlet fever.

ARSENIC AS EMPLOYED IN DERMATOLOGY BY THE GENERAL PRACTITIONER.

Saalfeld[8] of Berlin asserts that while the advances in dermatology have been pretty widely recognized by the general medical profession there are still a large number of physicians who consider skin diseases and arsenic as synonymous terms. Arsenic is considered a universal cure in dermatology, of value in the most varied dermatoses, "from A to Z, from acne to zoster." The writer's object is to point out to the general practitioner how false this conception is.

Two categories of skin affections must be considered, first those in which arsenic is of no value, and secondly, those in which it works positive harm. In the latter class belong the dermatoses which are etiologically dependent on disturbances in the stomach and intestines. Many eczemas are to be included in this class, as well as the erythemas caused by food. The second category of skin affections, in which arsenic, although doing no harm, is of no avail, are the dermatoses whose cause lies in a toxic agent acting from without, such as pediculosis, scabies, and the affections caused by the various vegetable parasites.

The number of cases in which arsenic has a specific action, analogous to that of mercury in syphilis, is not large. It is regarded by some as of great value in certain of the less common dermatoses, such as lichen planus and lichen acuminatus. It has also had marked good results in the lichen chronicus simplex of Vidal. Other affections in which the writer has found the drug of value are pityriasis rubra pilaris and verreucae planae juveniles. He asserts that it also has a favorable influence on pityriasis rosea. In the large group of pemphigus affections, including dermatitis herpetiformis, he considers arsenic often of value, but far from specific. In leukemia, pseudo-leukemia, cutaneous sarcoma, and mycosis fungoides he considers that the drug has a certain place.

As to the value of arsenic in psoriasis, the authorities are not in accord. Those who regard this disease as caused by a parasite, consider the drug of no value. The writer claims to have seen great benefit from it in the early stages of the affection and cannot agree with those who would forbid its use in fresh hyperemic patches of the disease. In such cases he warns against the use of an energetic external treatment.

As to the most frequent of all skin affections, eczema, arsenic is indicated in those cases in which it may be assumed that there is a constitutional disturbance, when there may be large areas of lichenification, often having begun in early childhood. In some cases of seborrhea of the head accompanied by acne, arsenic may be of service. In the tuberculides and in prurigo it is also indicated.

The injurious effects of arsenic are not infrequently seen by the expert in the shape of pigmentations, keratoses and zoster. Disturbance of the digestion, dryness of the throat, irritation of the conjunctivae are more commonly met with. With regard to preparations, acidum arsenicosum is sometimes tolerated when Fowler's solution is not. All arsenical preparations should be given after eating. As to subcutaneous or intramuscular injections, the writer has found cacodylate of soda, a valuable preparation given in a 5% sterilized solution. Touching in a cursory fashion on the use of arsenic in syphilis, he points out the fact that it was employed in this disease with good results, years ago, especially in the case of those who were much debilitated. Salvarsan has greatly raised our hopes, and he remarks with commendable conservatism, that *perhaps later*, after further experimentation and a simplification of the method of application, *it may be used also by the general practitioner* with benefit to his patients.

REFERENCES.

[1] Annales de Derm. et de Syph., December, 1912.
[2] Berliner Klin. Wochenach, December 30, 1912.
[3] Archiv. f. Derm. u. Syph., Band cxiv, Heft 1.
[4] Bulletin de la Soc. Francaise de Derm. et de Syph., November and December, 1912.
[5] American Journal of Med. Sciences, March, 1913.
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Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, FEB. 12, 1913, AT 8.30 P. M.
THE PRESIDENT, DR. CHARLES A. E. CODMAN, IN THE CHAIR.

DR. H. M. CHRISTIAN gave a review of the most recent work by a foreign author on Genito-Urinary and Venereal Diseases.

THE REFLEXES AND NEUROSES OF THE RECTUM AND ANUS.

COLLIER F. MARTIN, M.D.: By demonstrating local lesions, pathological changes in the spinal cord, lesions of the sympathetic ganglia and interferences with the reflex arcs, we are able to interpret many symptoms associated with the rectum which before were inexplicable. Contrary to the teaching of most of the text-books on proctology, but in accord with the views of anatomical authorities, the rectum proper receives no innervation from the spinal nerves. According to Piersol, the visceral branches are really white rami communicantes, derived from the second and third or the third and fourth sacral nerves, and are distributed to the pelvic viscera by way of the pelvic plexus of the sympathetic. The upper portion of the rectum and the pelvic colon are supplied by branches from the inferior mesenteric plexus which in turn is derived from the left portion of the aortic plexus. On the other hand, the external sphincter, the skin of the anal canal and the peri-anal region, and the levator ani muscles have a spinal innervation, derived from the third, fourth and fifth sacral, and the coccygeal nerves. The view is experimentally borne out that the innervation for both automatic rectal, and automatic vesical, functions is situated in the sympathetic system. As the spinal innervation to the anorectal region extends only to the anorectal line or dentate border this becomes an important landmark in the consideration of rectal symptomatology. My own experiments have failed to demonstrate that any pain or tactile sensations extend above this line. That the rectal wall itself contains no direct spinal nerve representation seems evident from the absence of sensation when the stimuli are confined to the rectum. While pathologic conditions causing peripheral nerve disturbances produce many changes in the tonicity of the sphincters, diseases of the central nervous system have even a more pronounced influence upon the rectal and anal reflexes, and upon the sensory, motor and secretory functions. By far the most important symptom occurring in cases of central nerve disease, from the proctologic standpoint, is constipation. This condition is produced by alterations in the visceral nerve supply causing disturbance of the sensory, motor and secretory functions. Laxatives, massage and electrical stimulation are of great value in treating this condition.

SOME GOOD RESULTS IN INOPERABLE CARCINOMA OF THE BREAST BY MEANS OF THE ROENTGEN RAYS.

DR. GEORGE E. PFAHLER: Several patients are shown and reports given upon twelve inoperable cases of carcinoma of the breast which are all of this class I have treated. Relief of symptoms was obtained and large ulcerating carcinomas disappeared under the action of the rays. Treatment extended from several months to a year or more. The following conclusions have been reached.

1. In inoperable cases of carcinoma of the breast x-ray treatment offers a reasonable hope of relieving the patient of the symptoms of the disease, prolonging life and possibly causing complete disappearance of the disease.

2. Patients have been relieved of the symptoms of the disease for from one to eight years.

3. No other method of treatment has ever accomplished as much in this class of patients.

4. A careful mastery of good technic is essential to success.

FIFTEENTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

ATLANTIC CITY, N. J., JUNE 3 AND 4, 1912. HOTEL RALEIGH.

AGAR TUBES FOR THE ESTIMATION OF THE PANCREATIC FERMENTS.

DR. MAX EINHORN, New York: Agar tubes—mixed with albumen, starch and fat,—allow the ferment action to take place in them by osmosis. If the test substances added are colored with indicators, which undergo change when acted upon, it is easy to ascertain the presence of the ferments and also to estimate their approximate amounts by the volume of tube changed. The method of testing the ferments with the agar tubes seems to me to be simple and worthy of recommendation, though some details will have to be worked out further.

DISCUSSION.

DR. J. C. HEMMETER, Baltimore: I have never tried this method, but it impresses me very favorably. I should like to know whether the use of agar complicates the deductions; because in either case, whether testing for fat or carbohydrate, or proteid, he has a proteid in the agar.

DR. EINHORN: The reason I took agar is that if we produce it in some kind of concentration, and let it pass the digestive tract, it will not disappear. If we use it in a one per cent. solution, it disappears, but if a three per cent. solution is used, it remains. Agar is not changed by the ferments; but the other things we add can be acted upon by them.

SOME UNSOLVED PROBLEMS IN GASTRO-ENTEROLOGY,—PRESIDENT'S ADDRESS.

DR. WALTER B. CANNON, Boston, Mass: Some of these problems are the following: The reflex of swallowing, the "myenteric" reflex, by which a stimulant at any point in the digestive canal provokes contraction above and relaxation below. There are certain aspects of this that remain unexplained. In connection with the myenteric reflex, the question arises as to the relation between the diastalsis of the ileum and the anastalsis, or reversed waves, in the proximal colon. The relation of the myenteric reflex to defecation has not been studied. Another possible relation of the myenteric reflex to the activities of the canal, lies in the function of the ileocolic sphincter. The cardiac and pyloric sphincters are operated through this reflex. A great deal more work needs to be done on absorption. More significant than any of the problems thus far mentioned, however, I believe, is that which I touched upon in my address last year, when I submitted evidence before the association, as to the fundamental importance of tonus in the movements of the alimentary canal. If there exists the proper relation, between the tonic state and internal pressure,—that is, if the proper tension is developed,—then the various obvious movements naturally result. In the intimate connections of the indigestive processes with other activities of the body lie the most significant and the most profoundly interesting problems, not only of gastro-enterology and internal medicine, as a whole, but also of physiology as a special science. It is because of this interlac-

ing of interests that we, as surgeons and physicians and specialists and workers in the medical sciences, gather together each year in order to focus such light as each of us may throw on these more or less obscure features of our subject.

ATOPHAN IN THE TREATMENT OF GOUT.

DR. G. D. KAHLO, French Lick, Ind.: This is a brief report of the results of clinical experiments in the use of atophan (phenyl-cinchonic acid) in forty cases of abnormal uric acid metabolism associated with gastro-intestinal diseases. The author believes that we have in atophan a very valuable therapeutic agent, more effective and free from objectional features than preparations usually employed for such purposes.

DISCUSSION.

DR. JACOB KAUFMAN, New York City: The contention is that atophan increases the production of uric acid elimination to such an extent that it is necessary to give large quantities of bicarbonate of soda to prevent irritation by the highly acid urine. In true gout, it has been used with excellent results; but I have tried the atophan in the case of "uric acid excess of gout" and have seen no effect after its use. One of my patients, suffering from gout, and to whom I gave atophan while he was not taking plenty of bicarbonate of soda, passed a bloody urine which was loaded with numerous crystals.

DR. KAHLO: The results from the use of atophan are not so good in the regular form as in the typical cases. I have not seen any cases of hematuria.

THE DIAGNOSTIC WORTH OF THE GLYCYLTRYPTOPHAN AND THE TRYPTOPHAN TESTS IN DISEASES OF THE STOMACH. A REPORT OF 1175 CASES STUDIED BY A UNIFORM METHOD.

DR. FRANK SMITHIES, Rochester, Minn.: In our series, more than one-third of the proven cases of cancer of the stomach gave positive glycyltryptophan reactions; more than one-fourth were lactic acid positive; and about one-thirteenth of the number exhibited the tryptophan test. While gastric conditions, other than cancer, exhibit positive glycyltryptophan reactions, in no single class of disease of the stomach is this test obtained so frequently as in cancer. Our work does not show that the tryptophan test is, as has been advanced, pathognomonic of cancer. Low free hydrocloric or total acidity is frequently determined in gastric contents exhibiting positive glycyltryptophan, lactic acid and tryptophan reactions. Many cases of low acidity were negative to the above tests. Approximately one-half of the positive glycyltryptophan and tryptophan reactions were in gastric extracts containing bile and blood elements. Approximately one-fourth of the negative extracts contained blood and bile elements.

DISCUSSION.

DR. G. A. FRIEDMAN, New York City: I am working with the glycyltryptophan test in about twenty cases, and my experiments show that in cancer you obtain sometimes the reaction, but in other conditions I never obtained a positive reaction. I never came across a positive case of cancer, shown by this test, where other symptoms were not present. Usually you find lactic acid and all the signs. I believe that the tryptophan test for cancer is of no value whatever.

DR. JOHN A. LICHTY, Pittsburg: I gave up using this test a year ago. It seemed to me that the points which interfered with the test are those usually present in carcinoma of the stomach.

DR. KAUFMAN: This is an important subject and we should make use of every available method that enables us to make early diagnosis of carcinoma. A most reliable test is the presence of blood in the stool. In a recent comparison of tests for carcinoma; and in 96%, or 104 cases out of 110, blood was found. In the test for blood in the stool you must eliminate all possibility of error by arranging a careful diet of green vegetables, and by avoiding the putting of instruments in the stomach. The moment you use a tube there is the possibility of a lesion.

DR. SEYMOUR BASCH, New York City: I have also found the test unreliable in gastric carcinoma diagnosis. Another test—offered on theory—is the presence of undissolved albumen. The basis of the test is that the gastric contents, if it has the cancer secretion, contains more albumin than the ordinary test of gastric secretion. The ferments digest more albumin; the higher the body of albumin the greater the pepsin. The test is simpler than either of the other two, and better carried out.

DR. JAMES TAFT PILCHER, Brooklyn: I have had the opportunity of examining some four or five hundred cases of cancer of the stomach on whom operation was performed and diagnosis confirmed, and on all of these it was found (these tests being applied) that they did not give any basis on which to apply diagnosis. The clinical history is much more definite and of more diagnostic value than any of the tests that have been put forth. One precedure which seems to bear more directly on positive diagnosis, is that of giving bismuth and taking a radiograph of the actions of the stomach through the fluoroscope.

DR. J. C. HEMMETER: We must remember that Dr. Smithies is aiming to recognize the disease at a very early stage. The results are not clear-cut as yet. Dr. Kaufman's idea of showing the presence of blood in the feces is important.

DR. SMITHIES: In a great many cases carcinoma can be diagnosed accurately by the history. In our cases we have proved that the albumen test, the stain test, and the like, are all of vital value in the diagnosis of carcinoma of the stomach.

INDICANURIA.

DR. WILLIAM GERRY MORGAN, Washington: The paper is based on analysis of 138 cases, treated during 1911. The indicanuria may be accidental (transitory) or may be a definite part of the clinical picture, though still associated with other pathological processes. In a very few, it is an indication of true intestinal auto-intoxication.

Among the various etiological factors reviewed, particular stress may be laid upon loss of nerve tone as the cause of the underlying putrefaction, it being found that, in Washington, the end of the busy season is the time that most cases are seen.

The symptoms characteristically exhibited are those of an intoxication with a poison having especial affinity for the nervous system. Analysis was made of the symptoms complained of by the patients; and the one symptom present in the greatest number was gas formation in the bowel, indicative

of the putrefaction. Others of the most prominent symptoms were early fatigue, loss of ambition, malaise, headache, dizziness and muscle pains. A myriad of other nervous manifestations were present.

The cure must consist in measures preventing the formation of toxin and eliminating those already formed. Other associated conditions must be treated. Treatment of the condition itself consists of general hygienic measures, diet, exercise, irrigations and occasional medication. Purgatives have been found to do harm. In the majority of cases, cure is easy, but progress in the occasional true auto-intoxication is slow.

DISCUSSION.

Dr. Jacob Kaufman, New York City: Many conditions are described as being caused by auto-intoxication, but we find that not a single fact has as yet been shown which could prove that there was intestinal auto-intoxication. The problem remains unsolved. No substance has been demonstrated as acting as a toxine. Indican itself, is not considered toxic. In such cases I have sometimes found albumin. A certain amount of intestinal putrefaction is present; and so we have the output of indican, though we may have increased intestinal putrefaction without the indican. While admitting the possibility that such things as intestinal auto-intoxication exist, yet I do not think that the increased amount of indican can be used as an indication of the increased intoxication.

Dr. Max Einhorn, New York City: These troubles of auto-intoxication have been exalted greatly by the profession. Many patients are told that they have poisoned their system; they are put on a rigid diet and told they cannot do this or that; and they really become nervous and frightened. I have had some such patients. They are mostly nervous; which condition I relieve by letting them live like other people,—not bothering about constipation, diet, exercises, and so on. The whole thing of auto-intoxication is still a theory, and not practical. The chief thing that we should teach such patients, is that they must live rationally.

Dr. Dudley D. Rossitr, Brooklyn: While indicanuria has been something of a failure; still, the subject points out a half hope; though before we prove its relation to intestinal toxemia, we have much to find out. Much work can yet be done on this subject, and although we have had 150 cases under observation, we feel we do not know much more than when we started.

Dr. Jas. P. Tuttle, New York City: I have had many cases of so-called auto-intoxication, and in that type of disease have observed that in the worst cases of chronic constipation it had no relation to indicanuria, and many cases loaded with mucus, casts, etc., had no traces of indican. I found that indicanuria is most always associated with some type of staphylococcus or streptococcus infection. I am inclined to think that in cases of a large amount of indicanuria, there is some slight lesion, possibly around the lower end of the cecum. These cases do not need to be washed out with a barrel of water. It is not necessary for a man to have two movements a day. I have seen patients having one movement every two or three days, and they were just as well as though they had more. Do not scare your patients.

Dr. Morgan: From my experience with indicanuria, it is unimportant whether you examine the urine for indican. It is a definite picture, and you will find increase of indican along with the other conditions. There is an absorption in the canal which is rather important. I do not believe diet is good for auto-intoxication, and think a rational way of living is best. A part of the cure is taking the patient away from business; because it is the condition of the nervous system, or lack of nerve power, exhausted from use in other directions, that does not permit of his functioning properly.

(To be continued.)

Book Reviews.

Memorials of the Oswaldo Cruz Institute. Vol. iv, No. 1. Rio de Janeiro: Manguinhos. 1912.

This volume of publications continues the researches of the Oswaldo Cruz Institute. Particularly noteworthy is the work of de Faria, on "Contributions to Brazilian Helminthology"; of Horta, on "Primary Infection of the Guinea-pig with *Trichophyton Gypseum Asteroides*"; and of Aragao on "The Biology of the Ixodidae" and on "*Myctotherus Cordiformis.*" There are 8 admirable illustrative plates, 4 of them colored.

Experimental Physiology. By E. A. Schafer, F.R.S. London and New York: Longmans, Green & Company. 1912.

To the numerous laboratory manuals of physiology, Professor Schafer adds this. The ground covered is that usual in laboratory courses in physiology, particularly in Great Britain, where animal experimentation is highly restricted. The most valuable feature of the book is seen in the numerous very clear diagrams which serve to illuminate the text.

Report on Blackwater Fever in Southern Nigeria. My W. M. Graham, M.D., Director, Medical Research Institute, Lagos. London: Waterlow and Sons Limited. 1912.

This report, based on a study of the cases of blackwater fever occurring in Southern Nigeria from 1899 to 1911, constitutes a valuable original monograph on the disease. The author states the four principal theories of its etiology, and is disposed to believe, though he does not prove, that it is a specific disease caused by a specific organism. In a series of 12 appendices are presented tabulated statistics, photomicrographic plates of the liver and kidney from fatal cases, clinical charts, and a map showing the epidemicity of blackwater fever in Southern Nigeria from 1905 to 1911.

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LYNCHING AND CROWD-PSYCHOLOGY.

DR. FREDERICK L. HOFFMAN has presented in the *New York Times* of March 3, 1913, comfortable observations regarding the lynching of negroes in the United States. Based upon statistics supplied by the *Chicago Tribune* (for unfortunately "there are no Federal judicial statistics upon which a thoroughly trustworthy conclusion could be based") these observations are to the effect that the number of negroes lynched by the whites has year by year been steadily, and on the whole progressively, decreasing. In 1892 there were 235 lynchings reported (at the rate of 3.6 per million of our population). In 1912 there were only 64 reported; and since our population has greatly increased in the intervening two decades, the relative rate was last year only .67 per million, or the lowest recorded since 1885.

Most of our lynchings have been in the South, but States to the north and west of Mason and Dixon's line have been by no means guiltless of these crimes against civilization.

Dr. Booker T. Washington believes this most gratifying tendency toward the passing into oblivion of Judge Lynch is by reason that, during the last ten years at any rate, poverty and ignorance have been disappearing, while economic conditions are bettering; the South's rich natural resources are being developed, the negro is being trained to skilled industry; there are higher standards of living; and *pari passu*, there has come increasing respect for law and order, with consequent increase in self-restraint; and there is a fast growing sentiment among the white people in our Southland toward the orderly enforcement of the law. Dr. Washington does not believe that race antagonism has been the underlying cause of such lawlessness as has ended in the lynching of negroes. The incentives to racial antagonism in the bitter defeat of our white brethren in the Civil War (in the causation of which the negro was a large though innocent factor), have fast been disappearing; and they are today no doubt negligible with relation to the lynching of people of Dr. Washington's race. Besides, as we have seen, race antagonism does not obtain only in the South. Race conflicts are likely in the most unexpected ways to arise anywhere, in any city North or South, wherever crowds may congregate. In 1901 a negro shot a policeman who attempted his arrest. His having to pay the full penalty for this deed was as absolutely certain as any human event could be. Nevertheless there was that night a riot. Quite harmless, industrious, law-abiding negroes were struck with deadly weapons, stamped upon; and innocent colored women returning from their work were shamefully attacked. Street cars on crowded thoroughfares were stopped, and inoffending negro men and women were dragged from their seats, over the laps of other people, and were all but murdered by white men. Next morning those whites, on calm reflection, must have wondered how they had come to be seized with such insensate frenzy. And this happened, not in any one of our Southern States, but in New York.

In point of fact race antagonism may arise at any time, for the slightest reason, or for nothing at all in reason; herein the *genus homo* is no better than the squirrel. In any given wood gray and red squirrels cannot live harmoniously; either will live in perfect amity with any other kind of animal. But the grays and the reds will kill one another until either of these two colored species has been exterminated. Race antagonism is one of those primitive impulses which are like to work disaster should they have the opportunity to assert themselves in the collective mind—that is, in *The Crowd*.[1]

It has taken us many painful centuries to attain civilization, but relapses to savagery are practically instantaneous. Every student of history knows with what dreadful ease, through the baneful hypnotism of malicious leaders, or through evil suggestion, collective man can, by

[1] Le Bon, S.: The Crowd, A Study of the Popular Mind.

a kind of psychic contagion, be made to revert to barbarism—the higher brain centres being almost instantaneously short-circuited, so that the basal emotions of hate and rage, the primitive instincts of cruelty and slaughter, hold the situation. Lynchings are then liable to occur, and are phenomena altogether of the same nature as the Massacre of St. Bartholomew, the Sicilian Vespers, the Jew persecutions, the French Revolution, and hundreds of other race-tragedies with which the pages of history teem.

The best white people in the South have ever been against lynch laws; and yet they have not altogether prevented lynching. Indeed very good people among them have even participated in such abhorrent work, through the subtle and insidious influences indicated. Le Bon has well observed that "the quality of the individual in the crowd is without importance. From the moment they are in the crowd the ignorant and the learned are equally incapable of observation." And Senator Hoar in his superb autobiography has observed: "Her people, (Massachusetts) like the rest of mankind, are liable to waves of emotion and of prejudice. This is true the world over. It is as true of good men as of bad men, of educated as of ignorant men, whenever they are to act in large masses."

Apart from lynching, then, the psychology of the crowd is worthy of study, by reason of its many applications to human life as it is lived today. How else explain, for example, the objection of many thousands of our otherwise sensible people to so obviously salutary a measure as a National Health Bureau? How else explain such phenomena as anti-vivisection or the anti-vaccination movement?

THE DOCTOR IN PLAUTUS.

On the whole it is perhaps rather surprising that among the twenty extant comedies which have come down to us from the works of Plautus, in only one, the "Menaechmi," does a doctor appear as a *dramatis persona*. To English readers the "Menaechmi" is of peculiar interest, since from it Shakespeare, with characteristic indifference as to the originality of his material, borrowed bodily the plot of the "Comedy of Errors," one of his earliest productions and his only farce. Plautus in his turn adapted the story from Menander's Ἀδελφοί, but the tale is doubtless much older even than that.

Probably Shakespeare derived his knowledge of the "Menaechmi," through the first English translation of it, published in 1595, by William Warner, the author of "Albion's England." It is again characteristic of Shakespeare's genius that, though adopting the general plot, he so altered many of the details as to make the comedy essentially English and his own. His master stroke was the addition of the two Dromios, thereby increasing sixteen-fold the possibilities of laughable complications, which nevertheless he handles without confusion. Cylindrus, the cook in Plautus, is metamorphosed into the rotund kitchen-wench, whom Dromio of Syracuse so dreads, but who happily never appears on the stage. Similarly the doctor in the "Menaechmi" is transformed by Shakespeare into the schoolmaster, Pinch, a necromantic clerk who is summoned to conjure the supposedly bewitched Antipholus of Ephesus. Perhaps it is an honor to the profession that Shakespeare did not keep the doctor in his true character, for Plautus's physician is no credit to the craft.

The fifth act of the "Menaechmi" opens with a soliloquy by an old man, who is waiting for the doctor whom he has gone to fetch to heal the distemper of Menaechmus Epidamni.

"My bones ache with sitting, my eyes with watching, while waiting for the doctor, till he return from his business. At last the troublesome fellow has with difficulty got away from his patients. He says that he has just set a broken leg for Aesculapius and an arm for Apollo. I wonder whether I should say that I'm bringing a doctor or a carpenter."

Evidently the doctor was a surgeon; and his attempt to gain reputation by boasting of his cases is not unparalleled by the indiscretions of some young practitioners in our own time. In the doctor's first speech on his entrance, and in the reply to it, is repeated the familiar modern pleasantry of the patient who, in response to inquiry what is the matter, says, "That's what I want you to tell me." Then the doctor continues bragging of his practise, "Why, I heal countless times as many as he in the course of the day." Presently Menaechmus Epidamni appears on the scene, and then ensues the following abbreviated dialogue:—

Doctor: Save you, Menaechmus. Prithee, why do you bare your arm? Don't you know how much mischief you are doing to that disease of yours.

Menaechmus: Why don't you go hang yourself?

Doctor: (Aside) This case can't be treated even with ointment of hellebore. (Aloud) Tell me, do you drink white wine or dark?

Menaechmus: Why don't you ask whether I am wont to eat dark bread, or purple, or yellow? Or whether I am wont to eat birds with scales or fish with wings!

Doctor: Are your eyes ever in the habit of becoming hard?

Menaechmus: Do you take me for a locust?

Doctor: Do your bowels ever rumble that you know of?

Menaechmus: When I'm full they don't rumble at all; when I'm hungry, then they do rumble.

Doctor: Do you always sleep soundly until daylight? Do you easily go to sleep when in bed?

Menaechmus: I go to sleep if I have paid my money to him to whom I owe it."

This is no very remarkable example of method in case-history-taking, but doubtless it is fairly representative of the age. After some further colloquy, the doctor threatens that he will make Menaechmus "drink hellebore (apparently his one medicine) for twenty days," and orders him transported to his house for treatment.

The doctor in Plautus, then, is probably typical of his time, and is a vehicle for broad satire against his profession. No doubt the sketch is overdrawn; but though exaggerated, it is a vivid and convincing picture of the fallacies and foibles of medicine two centuries before the Christian era.

THE APPOINTMENT OF DR. ROSENAU.

In the nomination by Governor Foss and the subsequent appointment of Dr. M. J. Rosenau as a member of the Massachusetts State Board of Health a decided step in progress has been made. It is recognized that many motives are operative in the appointment of persons for public office which the people at large are not always able to appreciate, but there will, we surmise, be no difference of opinion as to the wisdom of the selection of Dr. Rosenau. Among the various boards which have to do with the welfare of the community none is of greater importance than the Board of Health and in no other is experience and technical knowledge a greater asset. For this position Dr. Rosenau is peculiarly adapted both on account of his personality and his far-reaching knowledge of matters pertaining to public health and hygiene. Now in early middle life, he has devoted many years of undivided and assiduous study to questions of hygiene in the broadest sense. In the pursuit of this object he has travelled widely under the auspices of the United States Government and has applied his knowledge thus acquired both through publications of various sorts and in many equally important practical ways. Called recently to the headship of a newly constituted department as Professor of Hygiene and Preventive Medicine at the Harvard Medical School, he has already actively identified himself with questions of public concern and has established a course of instruction for health officers carrying with it a degree from the University, which is likely to conduce to more efficient public health service not only in this State but throughout the country. Governor Foss and the community are to be congratulated upon this admirable appointment, the duties of which Dr. Rosenau will, no doubt, fulfil with the conscientiousness which has always characterized his work.

MEDICAL NOTES.

PROGRESS OF DR. FRIEDMANN'S WORK.—During the past fortnight, Dr. Friedmann has continued the demonstration of his method of treating tuberculosis in New York and other cities, giving second inoculations to a number of patients whom he had first treated early after his arrival in this country. Following his return from Washington, he treated 50 cases on April 17 at St. Joseph's Hospital, Providence, R. I., and on April 18 returned to New York. It is stated that several of the patients treated already show definite evidence of improvement.

PLAGUE IN ECUADOR.—Report from Washington, D. C., on April 22 states that the bubonic plague, endemic in Guayaquil, Ecuador, is extending into the interior of that country, to Quito and intermediate points.

NATIONAL ACADEMY OF SCIENCES.—The annual meeting and fiftieth anniversary celebration of the National Academy of Sciences were held last week in Washington, D. C. The address of welcome was delivered by Dr. Ira Remsen of the Johns Hopkins University. At the closing session on April 24 Dr. William H. Welch, of Baltimore, was elected president for the ensuing year.

UNITED STATES VITAL STATISTICS FOR 1911.—The following vital statistics for the registration

area of the United States in 1911 were recently published in a bulletin of the Department of Commerce:—

"The total number of deaths returned for the registration area of the United States for the year 1911 was 839,284. The estimated mid-year population of this area was 59,275,977, or 63.1 per cent. of the total population of the United States, and the death-rate for the year was 14.2 per 1,000. This is the lowest death-rate ever recorded for the registration area. The registration States formed less than one-half of the total number of States in the Union. Together with the District of Columbia, which is included in totals for the group of registration States but is elsewhere treated as a registration city, they comprised altogether somewhat more than one-half of the total estimated midyear population in 1911 (54,385,234, or 57.9 per cent.).

"Out of the total of 839,284 decedents, 779,770, or 92.9 per cent., were whites and 56,431 were negroes (the latter including all mixtures of white and negro blood), while only 1,359 were Indians, 1,060 Chinese and 664 Japanese. The percentage of deaths of white persons and of white population is higher in the registration area than in the United States as a whole, because none of the Southern States, where the greatest proportions of negroes are found, is as yet included as a whole in the registration area.

"Out of the total of 839,284 deaths at all ages, 1,296—an unnecessarily large number—were of unknown or unstated age. No less than 1,054 of these were reported from the rural part of the registration States, a condition suggestive of carelessness on the part of local registrars in rural districts in accepting certificates of death without the statements of the ages of the decedents. Deducting the unknown or unstated ages, there remain 837,988 deaths at unknown ages, of which 149,322, or 17.8 per cent., were of infants under 1 year of age, 209,482, or 25 per cent., were of children under 5 years of age, and 222,579, or 26.6 per cent., were of persons 65 years of age or over.

The percentage which deaths of infants under 1 year of age formed of the total deaths at known ages for the year (17.8) was somewhat less than that for 1910 (19.2). This ratio, however, is not a reliable one for the comparison of infant mortality.

"For the group of registration States as a whole the death rate per 1,000 of infants under 1 year of age in the population was 112.9, or about eight times the death-rate at all ages. The death-rate of children from 1 to 4 years of age (11.8 per 1,000) was equal to about one-tenth of that of infants under 1 year. The death-rate of children in the first five years of life (32.9) was about ten times that of children in the second five years (3.1), and was greater than that for any age group except that of 65 to 74 years (55.2). These figures show the great preponderance of infant and child mortality, and a study of the death-rates of infants and children for individual areas will show where special effort may be made to restrict the causes to which such deaths are chiefly due.

"The largest percentage of decrease in the death-rate of infants under 1 year of age shown for any of the States compared was that for Rhode Island, 30 per cent., and the smallest, that for Michigan, 8 per cent. In all the large cities included in that table, except Minneapolis, St. Paul, Syracuse, and Portland, the infant death-rate was lower in 1911 than in the census year 1900. The largest relative decrease was in Atlanta, 55 per cent., followed by those for Indianapolis, 39 per cent., and Washington, Paterson, and Memphis, each 38 per cent."

A Living British Centenarian Barrister.—Mr. W. A. Gordon Hake, of Brighton, England, is reputed to be the oldest living barrister in Great Britain. He is said to have been born on April 5, 1811, at St. David's Hill, near Exeter in Devonshire. He retired from the active practice of his profession in 1865, and has since devoted himself to horticulture. He walks outdoors a great deal, and attributes his longevity to his abstemious habits, frugality, and abundance of physical exercise.

Decrease of Birth-Rate in Paris.—The annual report of Dr. Bertillon, recently published, shows a continued decline in the Parisian birth-rate. In 1861, when the city had 1,696,141 inhabitants, 53,570 births were reported, corresponding to a rate of 33.3 per 1000. In 1912, with a poulation of 2,870,000, there were only 48,230 births, corresponding to a rate of approximately 16.6 per 1000.

Prolonged Immunization Against Diphtheria.—Report from Wiesbaden, Germany, where the Congress of Internal Medicine was in session on April 18, states that Dr. von Behring of the University of Marburg has perfected a method for prolonged immunization against diphtheria by an antitoxin preparation.

BOSTON AND NEW ENGLAND.

Death of a Triplet.—Report from Greenwich, Conn., notes the death in that town on April 17 of Hope Allcorn, the last survivor of triplets, born at Herefield, Sussex, England, in 1832. That Hope outlived her sisters, Faith and Charity, and was the only one of the triplets to have children, of whom she leaves seven, affords obvious possibilities for moral and philosophic apologue.

New Milk Station in Dorchester.—It is announced that the Boston Milk and Baby Hygiene Association has decided to open a new milk station in Dorchester the coming summer. For this it is necessary that the sum of $1000 should be raised, and contributions to this fund are urgently solicited.

Fly-Killing in North Easton.—Report from North Easton, Mass., on April 22 states that the local District Nurse Association has offered to pay at the rate of one cent apiece for all flies killed in that town prior to May 17. This high premium is intended to stimulate fly destruction during the early days of spring, when the killing of a fly inhibits a larger number of offspring than later in the summer.

Measles in Eastern Massachusetts.—In last week's issue of the Journal we noted the occurrence of an epidemic of measles in Reading, Mass. The disease is also unusually prevalent in a number of other towns in Eastern Massachusetts. There are reported to be 85 cases in Wakefield at present, 175 cases in Malden, 120 in Lynn, 40 in Brookline, 72 in Quincy, and many in Melrose, Braintree, Weymouth, Hingham, Brockton, Rockland, Cohasset, Scituate, Marshfield, Kingston, and Plymouth.

Penalty for Selling Watered Milk.—In the Malden (Mass.) court last week a local dealer was fined $50 for having in his possession, with intent to sell, milk to which water had been added.

Dedication of Lynn Sanatorium.—A new sanatorium for tuberculous children was dedicated on Saturday, April 19, at Lynn, Mass., with appropriate ceremony. The building, which will accommodate 50 patients, was erected by the Lynn White Plague Relief Fund Association at a cost of $5000, the money having been raised by popular subscription.

Recent Hospital Bequests.—The will of the late Mary M. Donovan, of South Boston, which was recently filed for probate, contains a bequest of $300 to St. Elizabeth's Hospital, Boston.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 22, 1913: Diphtheria, 41, including 1 non-resident; scarlatina, 36, including 2 non-residents; typhoid fever, 6; measles, 221; tuberculosis, 51, including 4 non-residents.

The death-rate of the reported deaths for the week was 16.17.

NEW YORK.

Legality of Dairy Inspection.—Another decision in favor of the City Health Department of great importance in upholding the legality of the present methods of dairy inspection was recently handed down by the Court of Appeals. The case in which this was rendered was that of a dairyman outside the city who sued the chief of the Division of Food Inspection for damages sustained through the official action of the latter in notifying a creamery company not to include the plaintiff's milk in its shipments to the city because the inspectors had reported the conditions at his dairy as unsanitary. This complaint was dismissed in the Supreme Court of Delaware County some two years ago, and the plaintiff then appealed. The decision of the Court of Appeals sustains the right of the Department to prevent shipments from the country into the city of milk produced under unsanitary conditions at the dairy, and also points out that an action for injuries resulting from proceedings by the Department or its officers in the proper performance of their duties must be brought against the city.

Precaution Against Typhoid.—As an additional precaution against typhoid fever, the City Health Department has added the following section to the Sanitary Code: "Contractors or builders shall provide or cause to be provided temporary privies for the use of the men employed during construction work at some convenient place upon the premises, and the same shall be properly screened to prevent the entrance of flies thereto. The contents of such privies shall be disinfected and removed, and shall not be allowed to accumulate thereat. Contractors, builders, or other persons having the management of construction work, shall require workers and employees to use the privies so provided. It is hereby made the duty of each owner or occupant of any premises on which a privy is located or used to cause the same to be properly screened, so that flies shall not have access thereto or to the contents thereof."

The Longboat: an Alcoholic Retreat.—Miss A. M. de Peyster, secretary of the Seamen's

Benefit Society, has had fitted up, at her own expense, twelve rooms on the fifth floor of the fine new building of the Seamen's Institute for the special accommodation of sailors who get intoxicated while in port. The beds are only a few inches high, and on the floor mattresses are spread; so that a fall out of bed is not likely to be attended with serious results. Miss de Peyster has named this alcoholic retreat "The Longboat," in reference to an old nautical couplet which runs:

"What shall we do with the drunken sailor?
Put him in the longboat and make him bail 'er."

Recent Hospital Bequests.—Among numerous charitable bequests in the will of the late Miss Margaret E. Mitchell of New York are $1,000 each to the Roosevelt and Presbyterian Hospitals.

Under the will of the late Moses Weinman of New York thirteen benevolent institutions and societies are left $5,000 each. Among these are the Montefiore Home and Hospital for Chronic Invalids and the following other Hospitals: Mount Sinai, Beth Israel, Presbyterian and St. Vincent's.

Hospital Saturday and Sunday.—It is announced that the Hospital Saturday and Sunday collection this season amounted to $117,707, a considerably larger sum than in any year since the Association was organized, thirty-three years ago; $13,589 of the amount was raised by the Women's Auxiliary. During the past year two additional hospitals have been admitted to share in the benefits of the collection, making the total number of institutions represented in the Association 47.

Current Literature.

Medical Record.

April 12, 1913.

1. Morris, R. T. *Peritoneal Adhesions of the Insidious Toxic Group.*
2. Hayes, H. *The Prevalence of Catarrhal Deafness and Its Economic Consideration.*
3. *Griffin, W. W. *A Few Interesting Cases of Bone Lesions.*
4. Sheedy, B. DeF. *The Results of Tonsillectomy.*
5. Buerger, L. *The Pathology and Treatment of Callous Ulcer of the Bladder.*
6. Leszynsky, W. M. *Sexual Disorders Associated with Diseases of the Nervous System; and Remarks on Present Day Sexual Problems.*
7. Clendening, L. *The Accuracy of Systolic Blood Pressure Determinations by Various Methods and the Clinical Use of the Diastolic Pressure.*

3. Griffin reports several cases of bone lesions with x-ray plates, and points out that a "mouse-gnawed" appearance of bones in a radiograph is highly suspicious of syphilis. [L. D. C.]

New York Medical Journal.

April 12, 1913.

1. Proelcher, F. *Poliomyelitis and Variola.*
2. McConnell, G. *The Pathology of Neuralgia.*
3. Mammack, C. E. *How Much of Eugenics is Scientific?*
4. Goodhardt, S. P. *Atypical Children.*
5. Watson, L. *Hemorrhoid Operations.*
6. Hebert, P. Z. *Improvements in the Speculum.*
7. Dennett, R. H. *Exercise and Diet in Relation to Growth.*
8. Packard, M. *The Treatment of Pneumonia.*
9. Allan, J. *Jequirity in Ophthalmic Work.*
10. *Held, I. W. *Heart Block (Adams-Stokes Syndrome).*
11. Van Voast, P. M. *Suitable Amusements for the Growing Child.*
12. Hoobler, B. R. *Diseases Influencing Growth.*
13. Haywood, H. B. *Acute Anterior Poliomyelitis.*
14. Ormsby, R. *The Injection of Salvarsan.*

10. Held reports a case of heart block with attacks of Stokes-Adams' syndrome, and he quotes at length from the literature of the subject. The treatment, he says, depends upon the kind of heart block. If the bundle of His is diseased we can only hope to be successful if the lesion is due to a gumma, and here treatment is most satisfactory. In other cases treatment is purely symptomatic. Hydrotherapy is restricted to lukewarm baths, with rest and friction afterward. Carbonic acid baths may be used to advantage if the blood pressure is not too high. Atropine is of value in the neurotic type of case. The diet is that of general arteriosclerosis and myocarditis. [L. D. C.]

The Journal of the American Medical Association.

April 19, 1913.

1. Westbrook, F. F. *Instruction in Hygiene in Medical Colleges and the Training of Health Officers.*
2. Pool, E. H. *Systematic Exercises in Postoperative Treatment.*
3. Wolfsohn, J. M. *A New Lumbar-Puncture Needle.*
4. Brotherhood, J. S. *Hospital Clinical Records.*
5. Hastings, T. W. *Complement-Fixation Tests for Streptococcus, Gonococcus and Other Bacteria in Infective Deforming Arthritis and Arthritis Deformans.*
6. Lerche, W. *Membranous Strictures of the Esophagus of Obscure Etiology.*
7. Potter, N. B. *Sahli's Pocket Sphygmobolometer.*
8. Ohlmacher, A. P. *The Bacteriology and Bacteriotherapy of Renal Calculus and Its Sequels.*
9. Lyons, R. *The Treatment of Amebic Dysentery with Subcutaneous Injections of Emetine Hydrochlorid. Report of Six Cases.*
10. Darling, S. T. *Budding and Other Changes Described by Schaudinn for Entameba Histolytica Seen in a Race of E. Tetragena.*
11. Ashburn, P. M. *The Relationship of Variola and Vaccinia.*
12. Tarnowsky, G. D. *Tubal Reimplantation. A New Conservative Operation for Sterilization of Women.*
13. Rosenow, E. C. *The Etiology of Articular and Muscular Rheumatism.*
14. *Flint, J. M. *A New and Simple Treatment for Acute Traumatic Subdeltoid Bursitis.*
15. Detwiler, A. K. *The Recently Described Parasite of Syphilis.*

16. Mallett, E. P. *An Automatic Ligature-Passing Forceps.*
17. Frisch, F. *New Iris Scissors.*
18. Squier, J. B. *An Unusual Type of Hydrocele.*

14. Flint has found immediate relief from acute pain in acute traumatic subdeltoid bursitis by aspiration of the fluid with an ordinary syringe. He also finds recovery more speedy if aspiration is practiced. The procedure is simple. [E. H. R.]

Bulletin of the Johns Hopkins Hospital.

April, 1913.

1. *Richardson, E. H. *Tuberculosis of the Urinary System in Women.*
2. Ford, W. W., and Watson, E. M. *The Effect of Chemical Treatment upon the Baltimore City Water.*
3. *Grove, W. E. *Certain Dangers of the Adenoid Operation.*
4. Davis, J. S. *The Transplantation of Rib Cartilage into Pedunculated Skin. An Experimental Study.*
5. Stitt, E. R. *Dengue, Its History, Symptomatology and Epidemiology.*

1. Richardson's paper is devoted to a study of a case of renal tuberculosis in a woman. Among the important local symptoms, he calls attention to polyuria, frequent and painful micturition, hematuria, pyuria, pain in the lumbar region, a sensitive kidney, and tubercle bacilli in the urine. The important constitutional symptoms are: irregular fever, night sweats and progressive emaciation. In treatment he recommends immediate operation to remove the kidney if only one is affected or if the remaining kidney is but slightly affected. He devotes only a few lines to the usual hygienic and dietetic measures, and says that tuberculin should be given a cautious trial. This article distinctly over-emphasizes surgery at the expense of tuberculin and other hygienic measures.

3. Grove describes certain complications following the adenoid operation, such as involvement of the ear and accessory nasal passages and cites several illustrative cases. He urges against operating when any local infectious process, however slight, is present in ear, nose or throat. He emphasizes the need of a thorough operation and that patients should be kept under observation for two or three weeks after operation. [J. B. H.]

The Lancet.

March 29, 1913.

1. *Hall, F. de H. *The Lumleian Lecture on Intra-Thoracic Aneurysm. Lecture II.*
2. *Findlay, L., and Watson, F. *Eczema Oris as a Manifestation of Congenital Syphilis.*
3. Macnaughton-Jones, H. *The Relation of Puberty and the Menopause to Neurasthenia.*
4. Harris, W. *Hyoscine-Morphia Anesthesia for Alcohol Injections in Neuralgia.*
5. Williams, C. T. *Remarks Introductory to the Clinical Study of Pulmonary Tuberculosis.*
6. Abamy, S. A. *The Individual Treatment of Diabetes.*
7. Macfie, J. D. *The First Hundred Cases Recommended for Sanatorium Benefit in East Essex.*

1. In the second Lumleian Lecture, Hall discusses the various abnormal conditions found in the pulse when an aneurysm is present. He discusses the pupils and the question of tracheal tugging. He describes the changes shown by the x-rays and presents 12 excellent plates. He gives statistics showing the relative frequency of the various modes of termination of this disease and discusses the differential diagnosis and the relative value of various symptoms.

2. Findlay and Watson consider eczema oris to be an important and little described symptom of congenital syphilis. In its most typical form the lesion is situated at one or both angles of the mouth and radiates therefrom towards the cheek, sometimes in the form of a fan-shaped patches. He gives in tabular form the results as regards the Wassermann reaction and the clinical histories of 21 cases in which this was a prominent symptom. [J. B. H.]

British Medical Journal.

March 29, 1913.

1. *Bond, C. J. *A Lecture on the Mucous Channels and the Blood Stream as Alternative Routes of Infection.*
2. Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture I.*
3. Macalister, C. J. *The Esthetics of Medicine.*
4. Barling, S. *Henoch's Purpura with Intussusception. Laparotomy. Recovery.*

1. Bond discusses the question as to whether the infective agent in disorders of the liver, kidney, gall bladder, urinary bladder, mammary, salivary and other glands reaches these structures by the blood stream or by the mucous channels through which these organisms communicate with the surface of the body. Under this heading he discusses typhoid carriers, epididymitis, pyelitis, urinary stasis, etc., but comes to no definite conclusions. [J. B. H.]

The Practitioner.

April, 1913.

1. *Savage, G. H. *Automatism.*
2. *Jones, R. *"Responsibility"—in Regard to Certain Forms of Unsoundness of Mind.*
3. *Newman, D. *Chronic Cystitis and Retention of Urine; Treatment by Drainage and its Beneficial Effect upon Damaged Kidneys.*
4. *Cubitt, H. *Modern Urinary Surgery; Points for the Practitioner.*
5. *Walker, J. W. T. *Recent Work in Genito-urinary Surgery.*
6. Ferris, W. H. *A Modification of Spengler's Rapid Precipitation Method for the Estimation of Approximate Immunity against Tuberculosis.*
7. Chapman, C. W. *Review of the Literature on Heart Disease.*
8. Turner, J. G. *Some Recent Work on Dental Surgery.*
9. Cobb, T. G. *The Diagnosis of Neurasthenia.*
10. Young, G. P. *Heredity, Eugenics and the Falling Birth-Rate.*
11. Telling, W. H. M., and Hann, R. G. *Case with Comments. Influenza with Repeated Rigor.*
12. Russell, W. B., Wood, F. L., and Barrett, W. E. *Three Cases of the Acute Abdomen. With Comments.*

1. Savage discusses interestingly with numerous illustrative cases this somewhat rare condition.

2. This article is of medico-legal interest, especially from the British point of view.

3, 4, 5. These are clinical papers dealing with various phases of modern genito-urinary surgery, with remarks on symptoms and treatment of the respective conditions described. There is an extensive bibliography. The papers present nothing new, but are an interesting review of this subject. [J. B. H.]

Deutsche Medizinische Wochenschrift.

No. 12. March 20, 1913.

1. Thiebnich, M. *The Treatment of Tetany in Early Childhood.*

2. Schubert, M. E. *Cymarin, a New Cardiac and Vascular Drug.*
3. Schoenborn, S., and Cuntz, W. *The Question of Parasyphilis.*
4. Racmeister and Heurs. *Investigations on the Cholesterin Content of Human Blood in Various Internal Diseases.*
5. Landau, M. *Adrenal and Fat Metabolism.*
6. Feldt, A. *The Chemotherapy of Tuberculosis with Gold.*
7. Dibbelt, W. *The Etiology of Rickets and Calcium Metabolism.*
8. Dræsing. *Contribution to the Etiology of Rickets.*
9. Schlesinger, E. *The Results of Roentgen Investigation in Gastric Ulcer.*
10. Neumann, A. *Further Experiments with the Employment of the Omental Flap in the Treatment of Perforated Gastric and Duodenal Ulcer.*
11. Momberg. *Intraperitoneal Employment of Oil.*
12. Lewy, J. *Congenital Scoliosis.*
13. Neumann, W. *The Treatment of Extensive Hare-Lip with Complete Cleft of the Jaw.*
14. Frenzel, A. *Interdental Splint or Extraoral Bandage in Treatment of Jaw Fractures.*
15. Dutoit, A. *The Magnesium Treatment of Traumatic Tetanus.*

Munchener Medizinische Wochenschrift.

No. 10. March 11, 1913.

1. *Oberndorfer.* *Syphilitic Diseases of the Aorta.*
2. Erne, F. *Functional Tests of the Kidney with the Phenolsulphonephthalein Method of Rowntree and Geraghty.*
3. Conradi, E. *Occurrence of Diphtheria Bacilli in the Secretion of the Nose and Throat of Infants with Indigestion.*
4. Witzel, O. *Treatment of Ruptures in General, and Especially the Gigant Rupture.*
5. Spiethoff, B. *Therapeutic Use of the Individual's Own Serum.*
6. Fraenkel, A. *Drugs to Check Cough and a New Preparation of Codein.*
7. Kauffmann, M. *A New Drug for Obesity, Colloidal Palladium-hydroxydul.*
8. Hildebrandt, W. *Chloroform-narcosis and Diseases of the Liver.*
9. Andree, H. *Extirpation of a Brain-Tumor Under Local Anesthesia.*
10. Häuer. *A Rare Foreign Body in the Male Urethra.*
11. Althoff. *Two Cases of Severe Lead Poisoning in Brass-workers.*
12. Altmann, K., and Dreyfus, G. L. *Salvarsan and Cerebro-spinal Fluid in Early Syphilis, etc.* (*Concluded.*)

1. This account of syphilitic aortitis is most interesting and comprehensive as to essentials. He describes the pathology and histology, differentiates them from degenerative sclerosis, enumerates the physical signs, symptoms, and the means of diagnosis; and emphasizes in conclusion that syphilitic disease of the aorta is shockingly common, that it kills in the most useful period of life and that if diagnosed early it can be cured in the clinical sense. [G. C. S.]

No. 11. March 18, 1913.

1. *Graff, E. *Albumen in the Metabolism of Febrile Patients; Its Treatment and Practical Significance.*
2. Krecke, A. *Chronic Appendicitis.*
3. Spitzy, H. *Use of the Force of Respiration in the Treatment of Scoliosis.*
4. Fränkel, J. *The Origin of Marked Tilting of the Pelvis.*
5. Glaessner, K., and Kreyfuchs, S. *Pylorospasm.*
6. Werner, P., and v. Zubrzycki, J. *Effect of Elektragol on Opsonins.*
7. Fauser, A. *The Question of the Presence of Specific Protective Ferments in the Serum of the Insane.*
8. Engelhorn, E. *Biological Diagnosis of Pregnancy.*
9. Fromme, F., and Rubner, C. *Functional Tests of the Kidney with Phenolsulphonephthalein.*
10. Decker. *Benign Polyps of the Large Intestine and of the Sigmoid.*
11. Pollard, R. *Valuation of the Internal Use of Mercury.*
12. Lade, F. *Use of the Herman-Perutz Reaction After Lumbar Puncture.*
13. Dreisbach. *Another Mushroom Poisoning.*
14. Pöhlmann, A. *Is the Use of the Brendel-Müller Reaction by the Practicing Physician to be Recommended?*
15. Brudzel, C. *Movements of the Pathological Stomach Revealed by the Roentgencinematograph.*

1. From his studies on a series of cases of infectious disease of various kinds Grafe draws the conclusion that the participation of nitrogen in metabolism is the same in the presence of fever as in its absence, and that by a rational diet all loss of albumen and of weight may be prevented even in the severest infections. [G. C. S.]

No. 12. March 25, 1913.

1. *Sauerbruch, F. *Effect on Diseases of the Lungs of Artificial Paralysis of the Diaphragm.*
2. Morpurgo and Donati, A. *The Question of Inheritance of the Anlage for Tumor Growth.*
3. *Rübsamen, W. *Clinical Experimental Studies of the Efficiency of Bebolics Post-partum.*
4. Dreyfus, G. L. *Neosalvarsan.*
5. Gerber. *Results to Date with Salvarsan and Neosalvarsan for Local Spirochetoses.*
6. Maier, L. *Effect of Hygienic Conditions on the Morbidity and Mortality of Measles-pneumonia.*
7. Seligmann, L. *A Method of Treatment Which Benefited a Case of Sarcoma of the Ovary, Involving the Spine.*
8. Reichel, H. *Skopolamin-sleep in Combination with Morphine, Pantopon and Narkophin.*
9. Schüffner, W. *Is Beriberi Also Endemic in Europe?*
10. Gastpar. *Examination of the Eyes of Schoolchildren.*
11. Kuhn. *First Aid in Asphyxia by Direct Blowing in of Air.*
12. Brück, F. *Personal Prophylaxis of Syphilis.*
13. Sabbe, F. *Ileus Callosum Ventriculi Totale; Extirpation; Observations on the Effect and the Technic.*
14. Fischel, L. *Iodipin by Clyster for Prostatitis.*

1. Sauerbruck reports having recently caused paralysis of the diaphragm in five cases of lung disease by cutting the phrenic nerve. The patients were able to be about again after three days and suffered no serious consequences and no disturbance of the heart or respiration. It is too soon to report the results which are hoped for.

3. The writer records observations on the effect of various ecbolics used after delivery. (The work is interesting, but unsuitable for a brief review.) [G. C. S.]

Wiener Klinische Wochenschrift.

No. 12. March 20, 1913.

1. *Fleischmann, K. *Operative Treatment of Myomata.*
2. Freund, L. *The Treatment of Psoriasis Vulgaris by Light Rays.*

3. Denk, W. *Experiences of the Balkan War.*
4. Huiterstoisser, H. *An Ascaris in the Hepatic Duct.*
5. Orth, O. *Partial Volvulus of the Stomach.*
6. Vogel, R. *Fractures of the Superior Maxilla, a Preliminary Communication.*

1. The author has had a gross mortality of 1.7% in 293 operations for myoma of the uterus. This includes a mortality per cent. of 5.2 for abdominal panhysterectomy, .93% for supravaginal amputation, for abdominal myomectomies 6.2%, for all vaginal operations 0%. He cites the statistics of Doederlein-Krönig, which show a total mortality of 5%.

Regarding x-ray treatment of myomata he makes the following observations:—

Though with x-ray treatment a number of disappointments are to be expected, it is a valuable addition to myomata-therapy.

Cases which show evidence of ovarian tumor, of sarcomatous or carcinomatous degeneration or of pus in the pelvis, or twisted pedicle with degeneration are probably for operative and not for x-ray treatment. [F. S. K.]

No. 13. March 27, 1913.

1. Bartel, J. *The Stage of "Lymphoid" Latency in Tubercular Infection.*
2. Houssay, B. A. *The Clinical Value of Adrenalin and Hypophysin.*
3. Gessner, W. *Fat Metabolism.*
4. Glaessner, K. *Stone in the Pancreas.*
5. Kahane, H. *States of Fear.*
6. *Mayer, A. *The Teachings of Bossi and Their Relations to Gynecology.*

6. The author protests strongly against the teaching of Bossi, who gives, he says, undue importance to gynecological insignificancies in their relation to mental diseases. Bossi lays stress on uterine position as a cause of mental derangement, but in several cited cases neglects to consider tubal infection. Bossi believes in repeated operations if necessary in this sort of case. The author cannot agree to this point of view, and cites several cases from his clinic cured by suggestion alone, leaving the minor gynecological condition to look after itself. [F. S. K.]

Deutsche Zeitschrift für Chirurgie.

Band 120. Heft 5-6. January, 1913.

1. Lindemann, A. *The Pathogenesis and Clinical History of Inflammations of the Renal Pelvis.*
2. *Wagner, A. *Acute Perforating Gastric Ulcer.*
3. Wolff, P. *The Catgut Question.*
4. Kroh, F. *Experimental Studies on the Theory of Ischemic Muscle Paralysis and Muscle Contracture. II.*
5. Ozani, Y. *Alcohol Disinfection.*
6. *Schepelmann, E. *Heart Valve Surgery.*
7. Porta, S. *New Procedure in Vascular Anastomosis.*
8. Ritter, C. *Critical Observations on the Critical and Experimental Investigations of the Origin and Disappearance of Lymph-Nodes.*
9. Zesas, D. G. *Obituary of Paul Niehaus.*
10. Ricker, G. *The Theory of Diacresis and Diapedesis Hemorrhage.*

2. On the basis of 15 cases which he reports from Roth's surgical clinic at Lübeck, Wagner concludes that there is no contraindication to immediate operation on every case of gastric ulcer perforating into the general peritoneal cavity. He believes the simplest, quickest, and therefore most rational operation is Lembert suture of the perforation with or without refreshment of the edges and attachment of a tab of omentum. Gastro-enterostomy is indicated only in pyloric stenosis or hourglass stomach. Excision or even resection as a rule make too great demands on the patient's strength. If suture is impossible, the perforation should be closed with omentum or gauze pack. The abdominal cavity should be irrigated with a gentle stream of warm physiologic salt-solution, without eventration or serious insult to the peritoneum.

3. Schepelmann, from Wullstein's surgical clinic at Halle, reports his experimental investigations on surgery of the cardiac valves in guinea-pigs. By employing Brauer's positive pressure apparatus, he has succeeded in establishing a communication between both ventricles near the apex, and both auricles by anastomosis of the auricular appendages. He believes that this plastic cardiac operation would be humanly possible and would successfully relieve congenital tricuspid stenosis. [R. M. G.]

Archiv. für Klinische Chirurgie.

Vol. 100. Part 3.

18. *Hildebrand, O. *Surgery of the Posterior Cranial Fossa.*
19. Heyrovsky, H. *Causation and Treatment of Idiopathic Dilatation of the Esophagus. Esophagogastro-anastomosis.*
20. Meyer, W. *Esophageal Cancer from the Standpoint of Thoracic Surgery.*
21. Goto, S. *Pathologico-anatomical and Clinical Studies in the So-called Myositis Ossificans Progressiva Multiplex.*
22. *Wenglowski, R. *Cervical Fistulae and Cysts.*
23. Jeger, E., and Israel, W. *Implantation of the Renal Vein into the Vena Cava. The Technic of End-to-side Vessel Anastomosis.*
24. Ropke, W. *The Operative Treatment of Duodenal Injuries Caused by Blunt Force.*

18. Hildebrand's article is a classified and detailed account of 51 cases of his own on whom he had operated for some condition of the posterior cranial fossa. Twelve cases had tumor of the cerebellar shelf angle; 6 had meningitis serosa and 4 had internal hydrocephalus. There were 5 cysts of the cerebellum, and 5 solid tumors, 8 tumors of the Pons Varolii, 9 of the cerebrum, 1 of the base of the brain and 2 undetermined. Of the 51 cases, the immediate mortality was 20, of which number 16 were inoperable. Only 22 survived 3 months or more. The highest mortality was among the inoperable cases, and of the 20 post-operative deaths, 10 were due to pneumonia, 3 to meningitis. Hildebrand concludes that early exploration in every case of suspected cerebellar tumor is the best treatment.

22. Wenglowski presents the evidence secured from the study of a number of embryos to show the formation of the branchial cysts. His article is valuable from that point of view. [G. C. S.]

Zeitschrift für Klinische Medizin.

Band 76. Heft 1 and 2.

1. Faber, K. *Atony of the Stomach.*
2. *Roth, O. *Remarkable Erythrocytic Inclusions in a Case of Splenectomy.*
3. Eisner, G. *Experimental Investigation on Autoserotherapy.*
4. Arnoldi, W. *Alterations in Chlorine Content in Blood Serum by Disturbance of Gastric Secretion.*
5. Wertheimer, J. *Tests of Pancreas Function.*
6. Wolff, H. *Influence of Meat Extractives on Vegetable Diet.*
7. *Schwenker, G., and Schlecht, H. *The Influence of Substances Which Affect the Sympathetic Nervous System on the Eosinophile Cell.*
8. *Hecht, V. *Dietetic Influence on Pathological Blood Pressure.*

9. Bauer, J. *Effect of Thyroid and Iodine Medication on the Blood Picture of Endemic Goitre.*
10. *Severin and Heinrichsdorff. *Liver Changes Following Salvarsan.*

2. A man of 26 years had had his spleen removed three and one-half years before for "splenic anemia," but no pathological or blood report made at this time was obtainable. The patient now comes to the hospital for epileptiform attacks. The blood examination is striking: hemoglobin 100%, red and white counts and differential counts of leucocytes are all approximately normal, but nearly one-half of the red corpuscles show basophilic granular stippling; moreover many of these abnormal cells also show a larger cell inclusion staining red with Unna's polychrome methylene blue. The latter are thought probably nuclear remnants by the authors. These erythrocytes show a diminished osmotic resistance, thus showing a susceptibility to hemolysis not depending upon the presence of the spleen. This patient did not show increased iron excretion in comparison with another patient with normal blood, but who had also had splenectomy performed. The patient had a number of forbears having similar diseases.

7. There was no constant effect of pilocarpine or physostigmine upon the eosinophiles in the circulating blood.

8. Hecht claims that diet, with the aid of regulated baths and exercise, is the greatest factor in bringing about a reduction in high blood pressure. His cases include not only those associated with adiposity, with excessive smoking, etc., but also cases of nephritis. In all a diet looking to the following points has successfully diminished blood pressure even to normal: (1) less stimulating diet, omitting spices, etc., (2) diminished meat, (3) increased vegetable diet, (4) diminution of fluid, (5) less salt, (6) limitation or discontinuance of alcoholic beverages. Hydrotherapy and mechanotherapy play also a prominent part in obtaining the wished for reduction in pressure.

10. The authors report two cases of acute liver atrophy which they think may have been caused by previous salvarsan administration. [J. B. A.]

Deutsches Archiv für Klinische Medizin.

January 16, 1913.

1. Erdélyi, P. *The Excretion of Nitrogen Products of Metabolism in Nephritis and the Intravenous Use of Diuretics.*
2. *Straub, H. *Determination of Acidosis in Diabetes Mellitus.*
3. *Schweisheimer, W. *The Alcohol Content of Blood Under Different Conditions.*
4. Herschberg, O. *Essay on the Knowledge of Brain Abscess. (Metastatic Brain Abscess Following Bronchial Gland Abscess.)*
5. Hefter, J. *The Excretion of Purin Bases in Health and Disease.*
6. Lenk, R., and Pollak, L. *The Presence of Peptolytic Ferments in Exudates and Their Diagnostic Importance.*
7. Ellermann, V. *The Importance of Separate Pipettes and Mixing Flasks in Clinical Blood Counting.*
8. v. Rohden, F. *Blood Circulation in the Lung in Closed and Open Thorax and the Effect of Increased or Diminished Pressure on It.*
9. Milne, L. S. *Anemia from Hemorrhage.*

2. Straub has presented in this article a good piece of work illustrated with many charts fashioned after those employed by Schlayer in Tubingen. By means of the method of measuring the CO_2 tension of alveolar air according to Haldén's technic he has found that a good estimate of the degree of acidosis may be obtained in diabetes. By this method the effect of an acid substance upon the breathing centre is measured, and the possibilities of neutralization on the part of the blood. He studied in diabetics and non-diabetics the effect of carbohydrate withdrawal from the diet. In both types of cases the CO_2 tension sinks but returns to normal quicker and sinks less in the non-diabetic. In coma the CO_2 tension reaches its lowest level. In ketonuria the CO_2 tension is only a measure of the retention of ketone bodies. If they are rapidly excreted, the CO_2 tension does not sink. If alkali can neutralize the acid the dropping of the CO_2 tension level is checked. Addition of most carbohydrates raises a pathologically low CO_2 tension.

3. Schweisheimer raises the questions of whether or no there is alcohol in normal human blood; also whether alcohol when drunk enters the blood stream unchanged and how long it stays in the circulation and in what proportion. Also he studies these relations in persons who are used and not used to alcohol.

He concludes that in normal blood there is from 0.02955 to 0.03686% of alcohol. Alcohol drunk enters the blood stream as such and may reach 2.266%, which is the highest he found. The concentration varies in the blood dependent upon the habits of the person. In non-drinkers it is more concentrated. In non-drinkers the alcohol reaches its height of concentration in about one and one-half to two hours, and after holding it for some time slowly falls, while in the accustomed drinker the concentration in the blood reaches its high level sooner, holds it less long and drops to normal quicker.

The psychic phenomena of drunkenness go parallel with the concentration of the alcohol in the blood. [C. F., Jr.]

Miscellany.

PRESIDENT LOWELL'S ANNUAL REPORT.

The recently published annual report of the president of Harvard University touches on many topics of general interest,—athletics, freshman dormitories, the Graduate School of Applied Science, the Coolidge Memorial Library, the new plan for admission to Harvard College, the University Press, and the Widener Memorial Library. The following paragraphs pertain particularly to the Harvard Medical School and its affiliated hospitals:—

"The year has been remarkable for a series of contributions to medical science made at the School. During the summer and autumn of 1912 Dr. Folin published his discoveries in metabolism, which made a profound impression, and his analysis of the blood in cases of rheumatism and gout; Dr. Mallory, his discovery of the germ of whooping cough; while Dr. Rosenau, with the coöperation of Dr. Richardson of the State Board of Health and Professor Wheeler of the Bussey Institution, ascertained that infantile paralysis was transmitted through a species of stable fly (*Stomoxys calcitrans*). Enlarging the bounds of knowledge is no less essential a function of a university than imparting it; in no field are the two more closely connected today than in medicine, and three such discoveries in the course of a single year are a deep source of gratification.

"For many years in the Medical School courses of instruction, both clinical and in the laboratories, have been offered for the benefit of physicians and surgeons in active practice. A large part of these have been included in the Medical Summer School, while others have been given in term-time. The science and art of medicine are advancing so rapidly that many practitioners are glad of opportunities to gain a greater familiarity with recent methods than they can get from medical journals alone; and the Faculty felt that instruction of this character could profitably be made more systematic. A Graduate School of Medicine has, therefore, been created, with a separate dean and administrative board, and to some extent an additional staff of instructors, although not a distinct Faculty.

"Reference has been made in a preceding page and in former reports to the closer relations between the Medical School and the different hospitals. The central factor in the movement is the alliance with the Peter Bent Brigham Hospital, situated opposite the main entrance to the School. The buildings are nearly completed, and will be ready for the first patients in a few weeks.

"Notable also in the history of the School has been the opening of the Collis P. Huntington Memorial Hospital for cancer in close co-operation with the School."

RESOLUTIONS ON THE DEATH OF DR. ALEXANDER.

The Medical Staff of the New England Hospital for Women and Children has been greatly shocked by the untimely death of Dr. Clara J. Alexander, who has been for many years one of its valued surgeons. Dr. Alexander was ever ready to give her services to rich or poor and was indefatigable in her efforts for the best interests of both Hospital and Dispensary. In January, 1912, she was called to India to assist in organizing a Surgical Department in the Holdsworth Memorial Hospital at Mysore, S. India, taking for this purpose a two years' leave of absence. Her letters from India were cheery and enthusiastic, with no mention of ill health, and her colleagues here were already looking forward to her return.

Dr. Alexander's personality was forceful and decisive and she will be greatly missed by her many friends.

Resolved, That the Hospital Staff desires to express great sorrow for the loss of Dr. Alexander and conveys to her family the deepest sympathy in their bereavement.

Resolved, That a copy of these resolutions be sent to the family and that they be published in the Boston Medical and Surgical Journal.

At the regular meeting of the New England Hospital Medical Society, held on April 17, the following resolutions on the death of Dr. Clara Alexander were drawn:—

Resolved, That in the death of Dr. Clara J. Alexander this Society has lost a highly valued member, and the medical profession one of its ablest practitioners. Her exceptional training and natural aptitude for surgery made her eminent in that branch of the profession, in which she has few equals among the medical women.

The uprightness of Dr. Alexander's character and the thoroughness of her work, gained for her respect wherever she was known.

Resolved, That these resolutions be sent to the family of Dr. Alexander, and published in the Boston Medical and Surgical Journal.

Emma L. Call,
Emma B. Culbertson,
Sarah M. Palmer.

Margaret L. Noyes, *Recording Secretary.*

RESOLUTIONS PASSED BY THE COUNCIL AND ADOPTED BY THE NEW YORK ACADEMY OF MEDICINE IN MEMORY OF ALGERNON T. BRISTOW, M.D.

Whereas, The Council of The New York Academy of Medicine has learned with profound sorrow of the death of Dr. Algernon Thomas Bristow, therefore be it

Resolved, That the Council hereby records its appreciation of Dr. Bristow, the man and the physician.

He became a Fellow in 1901, and served as vice-president from 1906 to 1909. As an officer, as a member, and in his private practice he exemplified all that is best in the medical profession. He combined to an unusual degree the practical and the ideal in his work. Dr. Bristow was a man of great public spirit and much interested in all the activities of the Academy. His wise judgment and genial personality will be greatly missed. Therefore be it

Resolved, That a copy of these resolutions be sent to the family and to the medical journals.

William M. Polk, M.D.,
President.
Charles F. Adams, M.D.,
Recording Secretary.
Wisner R. Townsend, M.D.,
L. Emmett Holt, M.D.,
Committee of the Council.

Correspondence.

THE LURE OF GERMANY.

(From Our Special Correspondent.)

Vienna, March 27, 1913.

Mr. Editor: For years American physicians have flocked to Europe in large numbers to seek in Berlin or Vienna or other famous German medical centers post-graduate study. It is the accepted thing to do. Medical education is not considered complete until it has been done. To doubt this would be heresy.

There are three principal classes of physicians who go abroad—The first is the physician who has not as yet seen much active practice but goes to do special work extending over a year or more to complete his equipment for practice. The second class is represented by the man of maturer years who is conversant with modern medicine and its advances and goes to Germany to see at first hand things that interest him most. He does not stay very long. The third class, probably 85% of all who go, are the practitioners of longer or shorter standing who go for shorter periods—chiefly for the glamor of foreign study, or because it is considered the thing to do or, because it is the shortest road to a specialty. They are well meaning but superficial men, a large percentage of whom know no German and want to know none. Courses are arranged in the largest medical centres so that these men can in a short time hear a tremendous amount of bad English on any subject. They can order their medical instruction like the food at their hotels, the only difference being that their capacity for medical food is not wisely limited by Providence. How much these physicians, who as practitioners have long since been unused to sit in academic chairs and listen, really absorb and digest of this forced nourishment can be judged somewhat by a similar process with which all are familiar, namely, the cramming which students undergo at home.

The worst feature in the largest centre, Vienna, is that these physicians who may have listened to 200 hours of bad English or 20, receive from the University of Vienna, by a commercial transaction of associated American physicians, a diploma, which certifies to the American public, at least, that the owners are specialists, to the physicians themselves it may represent Kronens and no work.

Of course such a system does not in the least injure the University of Vienna. But it injures the standard in which the medical profession in America is held. I am sure that the best type of physician in America would not care to be advertised in this way.

It seems to me the way to help the situation is in supplying first-class post-graduate study at home and in advising the public at large not to put too much faith in the man who papers his office wall with paper bought in Vienna.

H. P. G.

EARLY SUCCESSFUL ATTEMPTS AT INTESTINAL SUTURE AND INTESTINAL RESECTION IN ANIMALS.

Mr. Editor: The following paragraphs on the above subject are taken from a medical thesis selected from among the inaugural dissertations of the graduates in medicine, of the University of Pennsylvania, published in 1806. The author of the thesis was one Thomas Smith, of the Island of St. Croix. These investigations probably represent among the very earliest successful experiments, although intestinal suture had been practiced in the human being a long time before this.

Experiment 5.

"On a full grown terrier, I repeated the former experiment, wishing to see, whether a longitudinal incision would not, by great care and attention, be so managed as to do away with the opinion of its being universally fatal. To effect which, a very small opening was made through the parietes of the abdomen, and a portion of intestine, being brought into view, it was divided longitudinally for about two inches, and afterwards secured by six stitches which were cut off at the knots. The parts having been returned, the lips of the external wound were brought together and secured by adhesive plaster. The animal did not appear to have suffered in the least from the operation, for in less than twenty-four hours he took food and has continued doing well ever since."

Experiment 7.

"Wishing to know how much of the intestine might be removed, without much endangering the life of the animal, I performed the following experiment: Having obtained a full-grown dog, an incision was made into the cavity of the abdomen, two inches of one of the small intestines were removed, the outside portions were then brought together, and the wound was treated as the transverse incisions had been. In dissecting of the divided portion of intestine, some of the branches of the mesenteric arteries were wounded, but did not bleed during the operation. On visiting him in the afternoon, I found there had been a considerable hemorrhage which still continued. I did not open the wound, but applied a piece of wetted linen to the parts, which had the desired effect. On the 18th, the belly being somewhat tense, two of the external ligatures were cut away, that the blood, should any have collected, might be discharged; but the wound did not open, and the dog soon resumed the appearance of perfect health, which continued without interruption until May 6, when he was killed. The divided portions of intestines were found united, and the ligatures had been all discharged."

Experiment 8.

"Having opened the abdomen of a pointer pup, three inches of intestine were excised, the arteries being secured, the intestines in other respects, were treated as the last had been. In twenty minutes after the operation, he vomited the food which he had taken in the morning, and appeared dull in the remaining part of the day. Three days after the operation, he took food, and continued doing well. May 6, he was killed, and the abdomen being opened, it was with difficulty I could ascertain where the division had been; the coats of the intestine appeared somewhat thickened; one of the ligatures remained attached internally."

Very truly yours,

Wm. Pearce Coues, M.D.

Boston, April 9, 1913.

CHANGES IN NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending April 19, 1913:

Allen, A. H., passed assistant surgeon. Detached from Atlantic Reserve Fleet, and ordered to U.S.S. *Connecticut*.

Vale, E. V., passed assistant surgeon. Detached from U.S.S. *Kansas*, and ordered to U.S.S. *Minnesota*.

Irvine, W. L., assistant surgeon. Detached from U.S.S. *Connecticut*, and ordered to Atlantic Reserve Fleet.

Phillips, E. W., assistant surgeon. Detached from U.S.S. *Minnesota*, and ordered to U.S.S. *Kansas*.

Huff, E. P., passed assistant surgeon. Detached from U.S.S. *Florida*, and ordered to U.S.S. *Scorpion*.

Straaten, R. J., passed assistant surgeon. Detached from U.S.S. *Tonopah*, and ordered to U.S.S. *Florida*.

Dessez, P. T., passed assistant surgeon. Detached from Navy Yard, Boston, and ordered to U.S.S. *Tonopah*.

Walton, D. C., assistant surgeon. Detached from U.S.S. *Scorpion*, and ordered to U.S.S. *Pittsburgh*.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals at Boston, Mass.; Chicago, Ill.; New Orleans, La., and San Francisco, Cal., on Monday, May 5, 1913, and Monday, June 9, 1913, at 10 o'clock, a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service.

Candidates must be between 23 and 32 years of age, graduate of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The examination usually covers a period of about ten days.

For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

THE NEED OF A MEDICAL MISSIONARY AT BEIRA, PORTUGUESE EAST AFRICA.

This appeal is issued by the American Board of Commissioners for Foreign Missions, Boston, Mass.

Location: Beira is located in Portuguese East Africa, south of the Zambezi River and close to the ancient city of Sofala, which was the earliest settlement of the Portuguese on the East Coast of Africa, these enterprising people having established themselves there in 1505 or thereabouts. Sofala, in turn, is supposed by some to be the site of tht Ophir of the Bible. From very ancient times gold has been obtained to the westward of Sofala, about three hundred miles and transported to the coast. Ruins of an ancient civilization are still found in that region, particularly at Zimbabwe. Beira, although in Portuguese territory, is the port of entry of Rhodesia, Cecil Rhodes having built a railroad from Bulawayo in Southern Rhodesia to the coast of Beira in order to find a shorter route for commerce than that to Cape Town. It has an excellent harbor and all vessels passing up and down the coast stop at this port, so that its communication with the outside world is good. Two railroad trains a week leave for the interior.

Population: It is a town of about one thousand population (European). These are mostly Portuguese, but there is quite an admixture of English and German on account of the extensive trade which is carried on from this point. There is an excellent hotel kept by an English woman, and good residences stretched along the shore looking out over the Indian Ocean. The native population varies according to the state of trade. When the railroad or government is engaged in large construction works there is a great influx of natives. This city has been chosen by the American Board as the site of a new station, not so much on account of the European residents or of the natives of Beira as because it is the proper base for an extensive work in the interior. Two rivers flow into harbor at Beira.

Climate: It must be confessed that the climate is trying, as is the case all along the East Coast. Beira is undeniably hot, but it is not unhealthy. The residence built by the American Board is on the sandy beach facing the ocean, and is carefully protected with copper screens against mosquitoes. The ocean breezes serve to ameliorate the heat and to keep away the mosquitoes and other insects. The city is built on the sand, and going in the streets is so heavy that narrow tracks have been laid on which tram cars are pushed by the natives. Each person has his own tram and his native boys to push the same. The Board has a station in the interior at Mt. Silinda among the mountains where the climate is quite different and where all the surroundings are attractive. The missionaries at Beira would need to take a two months' vacation at Mt. Silinda, or elsewhere amongst the hills during the hottest season. They would also need to come home every five years for a full furlough of a year.

Qualifications and Support: A Boston gentleman offers to pay the salaries of these missionaries whenever they are found. This appeal is particularly for a medical man, thoroughly qualified professionally, in physique, in missionary devotion and in ability to handle his fellow men tactfully. The Board expects the doctor to be a college man and a graduate of a high grade medical school, and to have had considerable practice. The Board will send the doctor to London for a special course in tropical medicine. It will be useless for indifferently prepared doctors to apply. The Board never lowers its standards in the matter of qualifications. The doctor need not be a Congregationalist but he must be earnestly Christian.

Correspondence: Physicians who wish to investigate this and other opportunities now open for Christian medical service in India, China, Turkey, Korea, and Persia should write to Mr. Wilbert B. Smith, 600 Lexington Avenue, New York City.

SOCIETY NOTICE.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The sixteenth annual meeting of the American Gastro-Enterological Association is to be held at the new Willard Hotel, Washington, D. C., May 5 and 6, 1913.

Physicians are cordially invited.

FRANKLIN W. WHITE, M.D., *Secretary*,
Boston, Mass.

APPOINTMENTS.

TUFTS COLLEGE MEDICAL SCHOOL.

1. DR. HAROLD WILLIAMS has been been appointed Dean and Professor of the Theory and Practice of Medicine Emeritus.

2. DR. HENRY B. CHANDLER has been appointed Professor of Ophthalmology Emeritus.

3. DR. ELWOOD T. EASTON has been appointed Professor of Ophthalmology.

4. DR. EDMUND W. CLAP has been appointed Associate Professor of Ophthalmology.

DR. LOUIS A. O. GODDU, Assistant in the Orthopedic Department at the Massachusetts General Hospital has been appointed Consulting Orthopedic Surgeon at the Woonsocket City Hospital, Woonsocket, R. I.

RESIGNATION.

DR. HAROLD WILLIAMS has resigned the position of Dean and Professor of the Theory and Practice of Medicine in Tufts College Medical School.

RECENT DEATHS.

DR. ALBERT EBER MILLER, of Needham, Mass., who died on April 21 at East Orleans, Mass., was born in 1831. He received the degree of M.D. in 1865 from the University of Pennsylvania, and was a member the The Massachusetts Medical Society, the Norfolk District Medical Society, and the Boston Gynecological Society.

Original Articles.

THE DIAGNOSIS OF THE TUBERCULAR CHARACTER OF JOINT DISEASE.

BY E. G. BRACKETT, M.D., BOSTON.
Surgeon to the Orthopedic Department, Massachusetts General Hospital.

(From the Orthopedic Department, Massachusetts General Hospital.)

FORMERLY the diagnosis of the tubercular character of a joint disease was a comparatively simple matter, for there were not the fine distinctions to be made as to the character of an arthritis. In children, it was but necessary to determine the existence of a joint disease, and the diagnosis of its tubercular character followed as a natural consequence; in adults, other than the acute and monarticular joint diseases, were classed as rheumatic. At that time, the group of clinical signs and symptoms was the means alone by which the diagnosis was made, and a positive diagnosis was made with comparative ease, for the effort only was to establish the existence of an inflammatory process, and the clinical signs were used to indicate only the presence of disease. Later on, the need of differentiation became necessary, the clinical picture was more carefully studied, and the attempt made to distinguish between certain forms of arthritis, by the variation in the different clinical symptoms and by their grouping. Very much of value was learned by this, and the attempt was then made to use the clinical signs; first, to determine the presence of a joint disease, and, second, to determine its character, and a great deal of dependence was placed upon the special clinical picture, in distinguishing, for example, between a tubercular and an infectious process. But the problem today is a very different one, for one by one, new methods have come into use, by which the pathological processes have been given finer distinction. The x-ray has led to the possible detection and location of early disease, and laboratory tests to the detection of various types of infection. Surgery now frequently permits exploration of joints, and the pathology of the process determined when formerly it was only suspected. Therefore, on the clinical side, evidence to detect the character anti-mortem is necessary. The demands today are for a very much finer distinction than can often be made by the mere external, the clinical, manifestation of disease. There is no reason why the clinical picture of an inflammatory process, caused by one particular germ, should at any given period of the disease, be clearly distinct from that occasioned by another. The clinical signs give evidence only of some form of an inflammatory lesion, but they give no evidence as to what kind of bacterium is the cause. As, for instance, the difference between an active form of a tubercular and a mild form of an infectious lesion, is too slight to be distinguished by clinical signs alone. The general course of the case is suggestive, but the character, or grouping of clinical signs, at any one time is of little value to the purpose. In the long course of a case enough may develop to be of value, but one can hardly wait until a disease has run its course, in order to make a diagnosis of its character. The distinctions are too fine for these coarse methods of diagnosis. All tests are, therefore, necessary to determine the character of any suspected lesion, the x-rays, the various forms of tubercular reactions, Wassermann, Luetin, complement fixation, and blood and urine examinations, and from these the evidence is taken. Nothing short of this is equal to place the definite clinical diagnosis on a par with the exactions of pathological distinction of today.

The problem today is quite a different one from that of formerly. Given the question of a suspected joint, the first step is to determine upon the presence of disease. The task is comparatively an easy one, and formerly it ended the question, but today the problem begins where then it used to end. The second step is to determine whether the disease is of a tubercular or non-tubercular origin, and this is the one of importance, for on it the principle of treatment and the questions of prognosis will depend, and it is a question often of very great difficulty and frequently one impossible to decide. For the positive proofs, it is necessary to use all the laboratory tests at hand, which are more definite in the results sought by them, and for just this reason, viz., that these tests are positive and rather definite in the answers they give to us, there is danger now that the study of this clinical picture, in its more accurate detail, may fall into disuse, and it is far too valuable an aid that we should allow it to do so. For example, the tendency is to look at the x-ray before making a careful clinical examination of the case, and to ask for the tubercular and other reactions before first weighing the clinical evidence, and it is extremely difficult to give the clinical side its real importance, after these other sources have biased our opinion. It is on account of the importance, as well as the frequent difficulty, of making this distinction between the tubercular and non-tubercular, that leads to this plea for emphasis on the study of the clinical side, and which appears to be in danger of neglect.

This paper aims to suggest, by means of a few illustrations, some of the questions which are helpful in the problem of making the diagnosis of a tubercular joint lesion, in distinction from the other general classes of the non-tubercular forms of arthritis. These are:—

1. The value of special clinical symptoms.
2. The routine method of diagnosis.
3. Diagnosis between articular or periarticular disease.
4. Location of the bone focus.

GENERAL CHARACTERISTIC ELEMENTS IN TUBERCULAR ARTHRITIS.

The following signs give evidence which will bear consideration. The special feature suggesting the tubercular character is indicated:—

1. Mon-articular
   (Second joint = less severe.)
2. Remissions—usual.
   Development—slow.
   Residual symptoms—persistent.
   (*a*) deformity,
   (*b*) limp,
   (*c*) slight disability,
   (*d*) swelling.
3. Pain—not prominent.
4. Swelling (synovial).
   From thick velvety membrane not fluid.
5. Temperature—0
   (or from secondary infection).

1. *Pain.* By a very great majority the disease is monarticular in manifestation. The second joint, when it exists, follows tardily on the first, is much less severe, and its course less destructive. This is in all probability due to the fact that the second, or the other joints, are of toxic rather than of bacterial invasion, as described by Poncet as tubercular rheumatism. In the non-tubercular forms, the rule is not only to have a multiple joint invasion, but the various joints are affected with various degrees of severity, destruction and frequency, and with chronological difference in their appearance. Also the joint which proves to be the most serious is frequently not the first invaded.

2. *Development and Remissions.* The development is slow, extending over a period of months, and sometimes years, and, in the early periods, the disability is, in a very large number of cases, to a surprising degree, slight. This slow development is attended with remissions, which are almost invariably present, and form a symptom which must be regarded as most important. A feature of these remissions, also of marked value, is that the disability never entirely disappears, but shows a residue in one or more of four features. These are (*a*) deformity, (*b*) limp, (*c*) slight disability, (*d*) swelling. The (a) deformity may not be noticed at all times; frequently in the morning on rising, and disappears after use, or a very slight residual deformity is left, which is later found to have existed only after careful questioning. The (*b*) limp and (*c*) slight disability are noticed only on active or forced exertion, not sufficient to restrict to usual routine. The (*d*) swelling can be detected only in the most superficially placed joints and in thin subjects. It is, as a rule, a swelling from a residual thickening of capsule rather than fluid, and does not change except with the exacerbations.

3. *Pain.* In the attacks pain is present, usually most noticeable as sensitiveness and disappears with the acuteness of the attack. In the disability which is found as a residuum in the remissions pain is not a usual symptom. The amount which is left usually depends upon the amount of involvement of the real articular surfaces of the joint, and is much less in the periarticular forms.

4. *Swelling.* Fluid in the tubercular joints is not usual, unless it be pus, and this naturally as a late symptom, and when destruction has occurred and when diagnosis is no longer in doubt. The swelling (in superficial joints) has much the feel of fluid, but is due to the thick, vascular, velvety synovial membrane, gives an elastic feel closely resembling that of fluid, and varies with the vascularity.

5. *Temperature.* Temperature is not to be expected in the slowly developing and quiet joints.

It is on the clinical side that emphasis is made in this communication, as being one which gives us not only a valuable aid in diagnosis, but the one always at hand, and many times the only one. Many a case will be seen by the general practitioner, away from the large centers, where the confirmatory tests cannot be made. But in our best equipped methods of examination reliance cannot be put on these signs alone, but all tests which may be given by laboratory methods are necessary to determine the character of the condition, and since we do use these other guides, it is of value to have a definite routine of examination in any case suspected of tubercular joint disease. Therefore a schedule of examination is convenient, an example of which is here given:—

History	Slow development	
	Remissions	
	Residual	Limp
		Deformity
	Pain—slight	
Joint involved—Knee		
Local signs	Capsular swelling	
	Flexion	
	Atrophy	
	Pain—slight	
Duration—One year		
Ankylosis—Motion		
Temperature—98.6 to 99.6		

Urine	Color	Reaction	Sp. Gr.	Albumen	Sugar	Sediment
	High	Ac.	18	0	0	Negative

Blood Examination	Haem.	80%
	Whites	5,900
	Reds	5,864,000

Reaction Tests	von Pirquet	Positive
	Tuberculin	Temperature +3° c. 1 mg.
	Wassermann	Negative
	Luetin	
	Neisser	Negative
Naso-Pharynx	Tonsil	Negative
	Teeth	Negative
	Nasal cavity	Negative
Gastro-Intestinal Tract	Acidity	Negative
	Constipation	Present
	Ptosis	Negative
	Stools	Negative

For many years it was understood to be quite sufficient to make the diagnosis of a joint disease. Later it was recognized clinically that there were two distinct types of joint disease: (1) the true articular, in which the true articular structures, the synovial membrane, the cartilage and underlying bone, were the seat of disease, and which gave true articular symptoms; and (2) disease

of the periarticular structures (focal disease) in which in the early stages there was no actual involvement of the joint structures themselves, and which gave rise to joint symptoms from the proximity of the disease to the joint, but which were different in character and grouping from the former, and could be called reflex joint symptoms. This form (by extension to the joint) later becomes a true articular, but with the lesser understanding was formerly frequently overlooked, until the articular involvement took place. The x-ray then gave positive proof of this distinction and its early detection, and it is now essential in the recognition of joint disease to make the clinical distinction of these two varieties. Here, too, we may study these by their clinical characteristics, for they give a distinctive grouping of the essential signs of joint disease.

The two types to keep in mind are those symptoms which accompany the involvement of the articular structures, and which may be regarded as true articular symptoms, and the symptoms which accompany the disease involving the structures near the joint, but not invading the joint structures themselves and which may be regarded as reflex joint symptoms. In tabular form these may be represented by the accompanying tables. The two forms represent articular and periarticular disease. It is not to be expected that all cases can be put into one or the other of the two groups, but the majority fall into place, and it is of help to determine the amount of true articular involvement, a very important factor in deciding on the course in any joint disease. The two types to keep in mind are: (1) those symptoms which accompany the involvement of the articular structures of the joint, and which may be regarded as the true articular symptoms; and (2) those symptoms which accompany the disease involving the structures *near* the joint, but not invading the joint itself, and which may be regarded as reflex joint symptoms. In contrast, these may be shown as follows in tabular form, representing articular and periarticular disease.

ARTICULAR DISEASE.	PERI-ARTICULAR DISEASE.
1. Pain (prominent symptom)	1. Limp (prominent symptom)
severe	2. Pain
referred	slight
sensitiveness	referred
2. Spasm—marked	sensitiveness (absent)
3. Motion	3. Spasm—slight or absent
much limited	4. Motion—slight limitation
none	5. Deformity—slight
4. Deformity—marked	6. Disability—slight
5. Disability—marked	7. Atrophy—slight
6. Atrophy—marked	8. Onset—slow
7. Onset—sudden	9. Remissions—marked
8. Remissions—absent	

It is not to be expected that all cases can be definitely fitted into one or the other of the two groups, but the majority fall into place, and it is of help to determine the amount of true articular involvement, a very important factor in deciding on the course of action in any destructive joint disease. As would be readily expected, the true articular symptoms are those which indicate an interference with the most active function of the joint, and which play a protective rôle, limiting its activity, while the other gives only protection from the more severe use of the joint. Thus the most noticeable feature of the articular type is pain (sensitiveness), with its accompanying features of spasm and deformity; while of the periarticular type, the transient attacks of pain and sensitiveness and a most noticeable is the early limp, with occasional marked tendency to remissions or intermissions. The nearer to the joint the disease, the more prominent articular character is the grouping of the signs, and, on the other hand, the lesser the degree of the articular involvement (most noticeably in some of the lower grade affections of the synovial capsule), the less prominent these articular symptoms, notably the pain and sensitiveness and tendency to deformity.

In many of the cases we must carry the diagnosis one degree farther still, and in cases of actual bone disease in early periods, localize the part of the bone affected, in so far as it affects the treatment and prognosis. In most instances this is definitely shown by the x-ray, but in conjunction with this the clinical signs are equally valuable. Two examples may be used to illustrate these: (1) the early lesions in hip disease, whether beginning in the femoral or acetabular portions of the joint; and (2) in vertebral caries, whether beginning in the anterior portion of the body, interfering with its weight-bearing function, or in the posterior portion of the vertebral body, and so situated that the column, in its weight-bearing function, is not seriously so involved, but with early involvement of the spinal canal with its cord. In this the x-ray is not of aid, and reliance must be put on the physical signs alone. Naturally the clinical course in these two will not be the same, and may be represented for the purpose of study in their clinical evidence by two types, and indicates the part which the clinical side of the examination may play in the attempt to localize the early focus.

TYPE I.

Prominent symptom = Disability
Knuckle—early
Pain—late
paroxysmal
+ by motion
c spinal sensitiveness
Remissions

TYPE II.

Prominent symptoms = Pain
Knuckle—late
Pain—early
s spinal sensitiveness
referred
follows activity
Intermittent
Intermission.

The above illustrates the value of careful grouping of the practical clinical signs as an aid in the finer distinctions in joint diagnosis, and with the perfection of the finer laboratory tests, it is important that special emphasis be put on the observation and study of the clinical side in diagnosis.

INFANTILE BERIBERI IN THE PHILIPPINES.*

BY DONALD GREGG, M.D.,

Assistant Out-Patient Physician, Boston Psychopathic Hospital.

Formerly

Assistant Professor of Tropical Medicine, University of the Philippines, and Acting Physician-in-Chief, Philippine General Hospital, Manila, P. I.

ALTHOUGH adult beriberi has been reported from many quarters of the world and has been attributed to many etiological causes, infantile beriberi, to the best of my knowledge, has been reported from but two countries,—Japan and the Philippine Islands. In 1888, Hirota[1] of Japan, first described this interesting condition which he called infantile beriberi. Later, Guerrero,[2] a Filipino, described clinically a similar condition among Filipino infants. And recently further clinical, pathological and experimental work has been done by McLaughlin,[3] Andrews,[4] Chamberlain and Vedder,[5]—Americans working in Manila.

Infantile beriberi—called in Japan "Kak-Ké," in the Philippine dialects "Taon," "Taol" or "Suba"—is a disease of great importance in the Philippines. Practically 50% of the deaths among the Filipinos in Manila are of infants under one year of age. This infantile death rate is two and one-half times higher than the death-rate of infants in the United States or European countries. Moreover, 75% of these dying infants are breast-fed, whereas in Germany only 12 to 15% are breast-fed. In Boston[6] in 1907, it was found that during the summer months only 20% of the infantile deaths were among breast-fed babies. Although it is difficult to draw conclusions from the death reports in Manila, as in many cases the condition is reported under the terms "convulsions," "congenital debility," "acute bronchitis," "acute meningitis," "enteritis," etc., yet post-mortem examination of a large number of these cases by McLaughlin and Andrews[3] has led them to think that over 50% of the infantile deaths in Manila were due to infantile beriberi. In other words, 25% of the total native death-rate in the city of Manila is thought to be due to this disease.

Infantile beriberi occurs invariably among breast-fed infants, and almost invariably among infants whose mothers show slight or marked evidence of beriberi. Consequently, as infantile beriberi is practically always associated with adult beriberi,—at the risk of telling you much that you already know, I shall briefly review the general subject of beriberi.

Beriberi has been known for many years in China, and is stated by Osler[7] to have been mentioned in possibly the oldest known medical treatise. It attracted much attention from the Anglo-Indian surgeons in the early part of the 19th century. Malcolmson, in 1835, published at Madras a monograph which is one of the first scientific reports of the disease. Recently Schaumann,[8] Frazer[9] and Stanton[10], of the Strait Settlements, and McLaughlin, Andrews,[4] Heiser,[11] Kilbourne, Bloombergh,[12] Chamberlain and Vedder,[13] of the Philippines, have shed much light upon this disease.

Beriberi in the Philippines is a polyneuritis affecting especially the laryngeal and cardiac branches of the vagus and the sensory and motor nerves of the lower limbs, which occurs in malnourished individuals who have lived on too exclusive a diet of polished rice. Among these individuals it is induced by any one of a series of exciting causes, such as exposure to cold or wetting, overwork, parturition, malaria or other intercurrent infectious disease. In the Far East, in China, Japan, the Philippines and the Strait Settlements, beriberi occurs among rice-eating people. In Newfoundland, Little[14] has reported a type of beriberi among the fishermen who have lived too exclusively upon white flour. Several cases have been reported from San Francisco[15] among the sailors who have lived almost exclusively upon small white beans. It has been reported from Australia, South America, the West Indies, among the fishermen of Norway and in certain institutions in Ireland and the United States. But wherever beriberi has occurred it has been associated, I believe, with too restricted a diet of rice, beans, wheat or other single article of food.

ETIOLOGY.

Although many theories of the etiology of this disease have been advanced, the evidence obtained from recent researches has practically eliminated the belief in an infectious origin for this condition, and has established, beyond any reasonable degree of doubt, the theory that the disease is due to a disturbance of metabolism and that, in the Philippines at least, the disturbance is intimately associated with a diet composed almost exclusively of rice that has been so prepared by milling as to be incapable of supplying all the nutritional demands of the human body. Relationship between the disease and the rice diet has long been suspected. The disease has been reported to be much more common among the natives in New Guinea,[16] who come in contact with Europeans and receive their pay in milled rice, than among the inland natives who raise and pound their own rice. Personally, I have never seen or heard of a case of beriberi in an American or European resident in the Philippines, nor among the wild tribes in-

* Read before the New England Pediatric Society, January 25, 1913.

habiting the inland regions of the large islands of the Archipelago. These inland people raise and prepare their own rice and are not dependent upon the milled rice that is commonly used by the lowland natives. Frazer and Stanton,[16] working in the Strait Settlements, reported in 1909 the results of an experiment of feeding laborers upon a diet of milled rice. They found that beriberi appeared among laborers fed upon milled rice and that it did not appear among laborers living under identically the same conditions who were fed upon a more varied diet, until their diet was restricted to milled rice. Chamberlain,[16] who, by the way, is a Harvard Medical School and Massachusetts General Hospital graduate, working in the Philippines, reported in 1911 upon the disappearance of beriberi from the Philippine scouts when a simple change was made in their dietary. Subsequently it was found that with the substitution of red rice for the milled or white rice in the dietary of the native government employees in lighthouses and government ships, and the native inhabitants of the Culion leper colony and the Insular prisons, beriberi practically disappeared. In 1911, however, when owing to a shortage in the rice market, white rice was temporarily restored to the dietary, beriberi promptly reappeared at the Culion leper colony. The exact nature of the nutritional disturbance is still undetermined. The belief of the American workers in the Philippines is that the condition arises from the failure of the milled white rice to supply a certain food element that is required by the human body. What this element is has not as yet been determined. By a careful analysis at the government laboratories in Manila,[17] it has been shown that it is not phosphorus, not inorganic salts, not succrose nor certain nitrogenous compounds. It has been shown to be soluble in cold water and in cold 95% alcohol, but insoluble in ether. It has been found to be dialyzable and absorbed by bone black or animal charcoal, but that it is not recoverable therefrom by maceration with water, absolute alcohol or ether. The percentage of phosphorus, of potassium and of amido-nitrogen have been shown to be reliable indices of the amount of the beriberi-preventing substance present in the rice.

Disregarding the exact nature of the nutritional disturbance that is the etiological factor of adult beriberi, it can be said that Infantile Beriberi in the Philippines is a disorder of metabolism, associated with a defect of certain unknown nutritional elements in the breast milk on which an infant is fed; that the disease is characterised clinically by cyanosis of the mouth and nose, slight dyspnea, periodic restlessness, insomnia, sometimes a slight cough, occasionally vomiting, tachycardia, slight edema of the legs with tenderness on pressure or motion, and possibly a change in voice or even aphonia; and that it results usually in sudden death. The disease occurs in nine-tenths of the cases among infants one to three months old and occasionally among babies four, five, six, seven and even ten months old, both sexes being affected. Native children alone are victims. The social condition is almost invariably poor. There is a slight seasonal variation in the occurrence of the disease, the largest number of cases occurring during the rainy season,—possibly because at this time other articles of diet are more expensive and the diet of the poor is more exclusively of rice. The infants are invariably breast-fed and almost always the mothers show slight or marked symptoms of beriberi.

SYMPTOMS.

The onset is insidious. The baby is plump and apparently well nourished; the face is round and chubby, sometimes almost swollen in appearance. Slight edema of the legs may usually be observed. Unless the infant is having a paroxysm of dyspnea or is in an advanced stage of the disease, it does not look sick, as it shows no paralysis and smiles and plays as a normal infant. Often the first symptoms noticed by the mother are restlessness, peevishness, a slight cough with dyspnea and perhaps cyanosis.

I have had a fat, healthy-looking baby brought to the hospital by a native mother, with the history that the baby turns black when it coughs. I have left the infant playing happily on the ward or nursing greedily at the mother's breast, instructing the nurse to watch and verify the mother's story,—and have been called back hurriedly a few hours later to find the baby cyanotic, gasping and so moribund that it has not responded to stimulation.

PHYSICAL EXAMINATION.

Physical examination shows usually a well developed and nourished infant about three months of age. The skin and mucous membranes of the face may be slightly cyanotic. The pupils are not remarkable; no strabismus or paralysis of the eye muscles is seen. The mouth and throat are seemingly normal; there are no enlarged glands in the neck; no enlargement of the thymus or thyroid glands is detected. The chest is of normal resonance, without areas of dullness. No bronchial breath sounds are heard; occasionally a few moist râles at the bases behind are detected. The heart is slightly enlarged to the left and occasionally enlargement to the right may be made out. The sounds are rapid, often clear; sometimes a slight systolic murmur is detected over the precordia. The pulses are rapid and often weak. The abdomen may be flat or rounded and tympanitic. The liver, spleen and kidneys are not remarkable. The genitals are normal. The legs show no paralyses; there is tenderness on pressure and movement of the legs, and slight edema over the shins. The knee-jerks are usually not obtained.

The temperature is normal or subnormal. Nothing abnormal is found in the blood. No albumin or sugar is detected in the urine.

MORBID ANATOMY.

Postmortem examination shows the subcutaneous tissues pale, watery and slightly edematous. The lungs sometimes show a little increased fluid in the pleural cavities; sometimes there is slight edema of the lung tissue. There is usually no evidence of bronchial inflammation,—no consolidation. A few subserous petechial hemorrhages are sometimes seen scattered over the visceral pleura. The walls of the right heart are markedly dilated and hypertrophied. No growths are seen on the valves. A few petechial subserous hemorrhages are scattered over the heart and pericardium. The gastro-intestinal tract usually shows no evidence of inflammation and no food elements other than milk curds. The genito-urinary system shows no abnormalities. The cause of death is seemingly due to failure of the respiratory center. During a paroxysm the infant shows more and more marked dyspnea and cyanosis. The breathing often becomes Cheyne-Stokes in character and ceases before the heart stops.

DIAGNOSIS.

The diagnosis is based upon the history, the appearance of the infant and the physical condition of the mother. The history is often that the baby has grown suddenly irritable; he may have a slight cough, grow cyanotic at times, have dyspnea and a harsh, crowing voice or he may even be aphonic; anuria may be complained of. The infant has always been breast-fed. He may perhaps look healthy, or he may be dyspneic and cyanotic without cause. The mother gives the history of having eaten milled rice almost exclusively. She shows some signs of polyneuritis, such as tender calf muscles, diminished or absent knee-jerks, varying grades of anesthesia of the legs, possibly some edema over the shins, dyspnea and tachycardia on slight exertion, and tells of feelings of numbness, weakness and formication.

The baby may improve rapidly or he may have an acute attack of dyspnea and die suddenly.

PROPHYLAXIS.

Prophylaxis consists of the proper nourishment of the mother during her pregnancy and period of lactation.

TREATMENT.

The treatment of infantile beriberi consists in giving the infant the nourishment that it needs. This has been accomplished by three methods:

First—Abundant feeding of the nursing mother. This method can be applied to a few hospital cases, but it is an economic impossibility to apply it to a community. It is often not of avail, moreover, in acute cases.

Second—Substitution of artificial feeding for the breast milk. This may possibly tide along acute cases in a hospital; but in a land where fresh milk is almost unknown among the poor and ice is a curiosity, artificial feeding means death, almost without exception.

Third—The giving of an extract of rice polishings, or "tiqui-tiqui." This preparation seems to supply the nutritional element absent in the breast milk. It is sweet and pleasant to take; it is not bulky and is easily prepared. It is efficacious and rapid in its action. Infants given 20 drops every two hours have shown almost immediate improvement; 5 c.c. are given daily.

CONCLUSIONS.

First—Infantile beriberi in the Philippines is a nutritional disease which occurs among native breast-fed infants.

Second—It causes about 25% of the total native mortality in the city of Manila.

Third—It is due to the absence of some as-yet-unknown nutritional substance in the breast milk of the nursing mother.

Fourth—It has been successfully treated by the giving of an extract of rice polishings, which is believed to supply the nutritional substance absent in the mother's milk.

Fifth—In the Philippines, where babies are almost always of necessity breast-fed, the reduction of the infantile mortality is dependent, even more than in other countries, upon the care and proper nourishment of the nursing mother.

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CHOLECYSTITIS AND CHOLELITHIASIS ASSOCIATED WITH PREGNANCY.

BY ROBERT M. GREEN, M.D., BOSTON.

THOUGH it is generally recognized that cholecystitis and cholelithiasis, like appendicitis and other abdominal emergencies, may complicate pregnancy and the puerperium, yet the majority of textbooks have relatively little to say about the clinical aspects of their association. De Lee,[1] in his recently published "Principles and Practice of Obstetrics," speaks of these conditions somewhat more fully as follows:—

"It seems that pregnancy is a factor in the development of gall-stones, and it is not rare that the gravida has attacks of biliary colic. These seldom occur before the fifth month, but jaundice, with chills and fever, is more common than in the non-pregnant state. Labor may cause pain in the full gall-bladder, and the latter may be easily palpated during the third stage. In the puerperium attacks of gall-stones are infrequent. I have observed two cases, in one of which the symptoms were very stormy, with intense pain, collapse and vomiting, so that suspicion of the rupture of an abdominal viscus could well be entertained. Operation should be postponed, if possible, until after delivery, at least as late in pregnancy as possible, because premature labor may occur and the child be lost.

"Cholecystitis may complicate pregnancy, labor, and the puerperium. The symptoms are quite stormy and jaundice common. It is better to wait until after delivery for the operation, if possible, but in the presence of a strict indication, for example, a large empyema, one may have to drain the sac before labor. In one case the author had to make a differential diagnosis between puerperal infection and pus in the gall-bladder. Absence of local evidences of puerperal disease, signs of local peritonitis in the upper abdomen, with appropriate history usually indicate the exact source of the trouble."

The most recent really complete consideration of the subject of gall-stones in pregnancy was published in July, 1910, by Peterson.[2] He reported a fatal case of obstructive cholelithiasis in a multipara six months pregnant, in whom death was due to post-operative cholemic hemorrhage. He further collected from the literature 24 other similar cases of gall-stones complicating pregnancy, and 10 cases of this complication during the puerperium. These statistics he tabulates and analyzes. His bibliography of 50 titles forms a thorough and satisfactory list of references on the subject.

In June, 1912, in "A Statistical Study of a Series of (274) Abortions Occurring in the Obstetrical Department of the Johns Hopkins Hospital," Titus[3] reported one case of miscarriage apparently associated with gall-stones, in which, however, the exciting cause of the abortion was supposed to be "an x-ray photograph of the patient's gall-bladder taken about one week before hemorrhage from the uterus began."

In July, 1912, Branson[4] published an article on "Cholecystitis and Cholelithiasis in Their Relation to Pregnancy," in which he reviewed and discussed the entire question. His is the latest available contribution on this topic.

In view of the importance and interest of the subject, I am led to record the two following cases which have come under my observation:—

CASE 1. I. C., a salesgirl of 22, had been married for three years, and during this time had had one miscarriage at four months, for which she was curetted, and one normal labor at full term. In August, 1911, she found herself again pregnant. On Nov. 4 she began to have a slight bloody discharge from the vagina, which continued until Nov. 14, when she began to have severe pains in the pelvis, bled profusely, and expelled a three months' fetus.

When first seen on the morning of Nov. 15, she was still flowing, but was not exsanguinated. Her pulse was 108 and her temperature was 100.°0. Her hemoglobin was 85%. Her general physical examination was normal. Vaginal examination showed a parous introitus, excellent perineum, a stellate tear of a hypertrophied and indurated cervix, through whose patulous os placental tissue was protruding. The uterus was in normal position and not tender, the fundus rising half-way to the umbilicus. There were no tenderness, masses, or resistance in the vaults. Under ether the cervix was dilated and the uterus curetted of a large amount of placental tissue. The uterine cavity was wiped out with gauze, irrigated with salt solution, and left empty.

The patient's temperature did not fall after operation, and she complained of some general abdominal pain. On the evening of Nov. 17 the temperature rose to 102.°2. An intrauterine douche was given, and on the evening of Nov. 18 her temperature was normal. On Nov. 19, however, she had an acute attack of severe pain in the right upper quadrant of the abdomen, where there was considerable tenderness and muscular spasm, but no mass was felt. There was nausea but no vomiting. On Nov. 20, the pain, tenderness and spasm continued, the temperature rose to 100.°0. The patient was slightly jaundiced and there was a trace of bile in the urine. The white count in the morning was 13,800, in the evening 20,200. On Nov. 21, the pain and fever had subsided, the tenderness and spasm continued, the white count was 17,600. On interrogation, the patient acknowledged having had previous similar attacks of pain, but never before so severe.

Her convalescence now continued normal and she was allowed to sit up on Nov. 26. She had a second attack of pain that day, and a third on Nov. 30, each lasting about 3 days, but less severe than the first. The physical signs were in each instance the same.

In view of these recurring attacks of pain in the biliary region, a diagnosis of intercurrent cholecystitis was made and operation was advised.

On Dec. 7 a high right rectus incision was made. The stomach was examined and found free from evidence of ulcer. The common bile duct was carefully palpated for its entire length, but no stone was found. The head of the pancreas felt normal in size and consistency. The gall-bladder was somewhat thickened and was surrounded by a few light adhesions, which were easily broken.

Walling-off gauzes were placed, the gall-bladder opened, and evacuated of an ounce of thick, dark bile, a culture from which showed a subsequent pure growth of staphylococci. No stones were found in the gall-bladder or cystic duct. The gall-bladder was stitched to the peritoneum at the upper angle of the wound and drained with a rubber tube. A cigarette wick was placed into the right renal fossa, and the incision closed to the drains in layers.

The patient had a normal convalescence except for a slight fever, which on Dec. 13, when the cigarette wick was removed, rose to a maximum of 101.°0. The gall-bladder drained freely, the bile becoming clear and golden-brown in color. With the removal of the stitches and rubber tube drain on Dec. 17, the temperature fell to normal and remained so. The sinus ceased to discharge on Jan. 4, 1912, and on Jan. 17 was entirely healed. Since that time, the patient has had no discomfort from the wound, her general health has been excellent, and she has had no recurrence of biliary pain.

CASE 2. L. K., a negress of 38, had been married for seven years, and in that period had had two normal labors at full term. Her latest regular catamenia ceased on June 20, 1911, and as she did not flow in July, she considered herself again pregnant. On Nov. 14 she began to have a slight bloody discharge from the vagina, which continued until Nov. 17, when she began to flow profusely and to have severe pain in the pelvis. She miscarried of a four months' fetus, but continued to have some dark bloody vaginal discharge, associated with vomiting and severe chills.

When first seen on the morning of Nov. 29, she had a temperature of 100°, and a pulse of 100. Her general physical examination was normal. Vaginal examination showed a multiparous introitus and perineum, a bilateral tear of a hypertrophied cervix, whose canal was patulous. The uterus was in normal axis and not tender, the fundus rising halfway to the umbilicus. The vaults were tender, but no masses were felt. Under ether the os was dilated and the uterus curetted of a moderate amount of tissue, which by the pathologist was reported as inflammatory, without evidence of malignancy or of pregnancy. That the patient had miscarried, however, there is no question. The uterus was irrigated, and on account of profuse hemorrhage was packed with two gauze strips.

The patient's temperature remained at a constant elevation of 100.°0, which at first was attributed to a diffuse bronchitis which she developed. She complained of headache, had a profuse diarrhea, and seemed lethargic. There was moderate tympanites and soft abdominal distention. The spleen could not be felt. The Widal reaction was negative, the white count 14,000. On Dec. 25 the patient had a sudden severe attack of pain in the right upper quadrant of the abdomen, requiring morphia for its control. There was marked tenderness and spasm in the gall-bladder region, but no mass was felt. The pain subsided, but on Dec. 7 the temperature rose to 101.°8, and the conjunctivae became jaundiced. There was no bile in the urine. On Dec. 10 the pain recurred, and on examination there was felt projecting from below the right costal border a smooth, rounded, tense, tender mass, the size and shape of a small Bartlett pear. On interrogation, the patient gave a history of having had typhoid fever at the age of 14, but denied having ever had any attack of abdominal pain similar to the present.

In view of the history and of the presence of a tender tumor in the region of the gall-bladder, associated with jaundice, the diagnosis was made of acute cholecystitis probably associated with obstructive cholelithiasis, and immediate operation was advised.

On opening the abdomen by a high right rectus incision, the gall-bladder was found tense, purplish, and distended to the size above described. Walling-off gauzes were placed, the gall-bladder opened and evacuated of two ounces of colorless, cloudy, tenacious fluid, a culture from which showed a subsequent pure growth of colon bacilli. Engaged in the opening of the cystic duct was a granular, non-



Gall-Stone from Case II: actual size.

friable greyish-yellow calculus (See figure) the size of a small robin's egg. This was removed. Careful palpation of the common bile duct failed to reveal other stones. The stomach and pancreas appeared normal. The gall-bladder was stitched to the peritoneum at the upper angle of the wound and drained with a rubber tube. A cigarette wick was placed into the right renal fossa, and the incision closed to the drains in layers.

On the morning of the day after operation, the patient's temperature rose to 105°, but fell that evening to 103.°0, and steadily thereafter till on Dec. 17 it reached normal, where it remained during the rest of convalescence. The gall-bladder drained freely of normal bile. The drains were removed on Dec. 15, the stitches on Dec. 21. The sinus ceased to discharge on Dec. 30, and on Jan. 2, 1912, was entirely healed. Since that time, the patient has had no discomfort from the wound, her general health has been excellent, and she has had no recurrence of biliary pain.

From a study of these cases and of those previously reported in the literature, it seems fair to make the following

CONCLUSIONS.

1. That there seems to be a definite causal association of cholecystitis and cholelithiasis with pregnancy.

2. That symptoms due to either of these conditions may occur during pregnancy, during puerperium following labor at term, or after miscarriage.

3. That the existence of gall-bladder disease is not in itself a cause of miscarriage, but that miscarriage may induce the development of active symptoms from a process previously latent.

4. That cholecystitis or cholelithiasis occurring during convalescence from miscarriage should receive the same surgical treatment and bear the same prognosis as in cases not associated with pregnancy.

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DIFFUSE SUB-DURAL LIPOMATOSIS OF THE SPINAL CORD IN AN INFANT.

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AND
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SUB-DURAL lipomata are not uncommonly seen in cases of spina bifida and spina bifida occulta. Von Recklinghausen[1] has shown the significance of these tumors, and has called attention to the fact that they are almost invariably mixed tumors, rather than true lipomata; usually myolipomata or fibrolipomata. These mixed tumors either spring from the subcutaneous tissue and stretch toward the cystic myelomeningocele, or are true intradural growths, springing from the spinal membranes and projecting free into the cyst. Fatty tumors may also appear when there is no marked cystic enlargement of the spinal canal, but only a flattened serous canal, the remains of a shrunken cyst that had formerly existed over the sacral region. It is noteworthy that in such cases club-foot, a symptom so often associated with spina bifida, has occasionally been observed.

In spina bifida occulta there are sometimes found intradural lipomata which may be connected through a fibrous strand, piercing the membrana reuniens, with a similar growth in the subcutaneous tissue. These tumors lie in the canal itself. All such tumors, it is to be remarked, lie in lumbar or sacral portions of the cord.

Cases of intradural lipomata not connected with spina bifida are, on the other hand, extremely rare. We can only find two cases reported in the literature. The first of these is that reported by Gowers,[2] and so closely resembles some of the tumors above alluded to that there is more than a likelihood that spina bifida was present. Gowers' patient was suffering from tabes dorsalis. At autopsy there was found a small mixed tumor composed of fatty tissue and striped muscle, attached to the conus medullaris, and apparently springing from the pia mater, which was greatly thickened. The tumor measured half an inch in length, three-eighths of an inch in breadth, and half an inch in thickness. Its position was left-sided, stretching from the anterior to the posterior fissure; the shape was crescentic. Bands of fibrous connective tissue divided it into islands. In the anterior portion there was much wavy fibrous tissue and striped muscle. Here again a congenital origin is suggested by the presence of muscle.

The second case is that reported by Braubach.[3] His patient was a girl of five years, who had suffered since the earliest months of life from cramps, which had later been followed by motor paralysis, pain and incontinence of both rectum and bladder. At autopsy the brain and medulla were found normal. The lower two-thirds of the cervical cord and the upper one-third of the dorsal cord were compressed by a tumor of fat tissue, springing from the arachnoid, and loosely connected in places with the dura. The tumor is spindle-shaped and measures 12 cm. long by 3 cm. wide by 2 cm. thick. The cord is pressed forward and to the left. It is compressed and degenerated and lies, as it were, in a canal in the front of the tumor.

The present case was found in a male infant, aged ten months, from the Pathological Service of the Bender Laboratory in Albany. The clinical diagnosis was chronic internal hydrocephalus. At autopsy the dura was found to be normal and to reflect normally from an apparently greatly enlarged spinal cord, which was covered with a smooth glistening arachnoid coat. The enlargement of the cord was symmetrical from the medulla to a few cm. above the filum terminale, where there was a marked constriction. Below this point there was an ovoid swelling one to one and a half cm. in diameter. In the cauda equina, attached to the nerve trunks there were numerous small, white, firm nodules, 2 to 5 mm. in diameter. The diameter of the cord in its greatest part (cervical) was two by one and a half cm. The diameter of the dorsal cord averaged one by one and a half cm. (Fig. 2). On section, the cord itself seemed to be flattened, and presented as a greyish zone 2-4 mm. wide, occupying a portion of the periphery on the ventral side. The material composing the bulk of the enlarged spinal cord was firm and white. The cross section presented a reticulated appearance, resembling a cross section of the muscle of fish. Microscopical examination of fresh material, however, showed that this was fat in the form of large globules.

It is to be remarked that in this case there was a congenital absence of the right kidney and ureter, as well as a chronic internal and external hydrocephalus, and a cleft palate and hare-lip. There were no other findings of importance, except that the spinal canal was much larger than normal, to correspond with the greatly increased dimensions of the cord. Thus it is seen that this case, though not associated with a spina bifida, was certainly associated with other congenital defects, a fact which raises the question whether such intra-dural lipomata ever occur except in connection with congenital malformations.

The medulla showed attached to it at the cerebellar-pontine angles, two small white nodules, attached to the pia mater by broad pedicles, one to one and a half cm. in diameter, greyish-white in color, and offering little resistance to the knife (Fig. 1). These nodules showed on microscopical examination an appearance similar to that of the tumor in the spinal canal.

Microscopically, in stained sections, the tumors over the medulla show masses of large spherical fat cells, divided into lobes by strands of connective tissue, which spring apparently from a greatly thickened pia mater. The fat of these cells stains like normal fat with Sharlach R and Osmic acid. The tumors contain several large vessels, and are on the whole distinctly vascular. They are partially encapsulated by a thin band of connective tissue, probably the remains of the arachnoid. The spinal cord appears throughout greatly flattened and distorted, and connected closely throughout its length with a fatty tumor, of the same nature with those in the medulla, in which are imprisoned several nerve roots. (Figs. 3 and 5.) The connective tissue capsule is thicker than that seen in the tumor over the medulla. The filum terminale is encased in a similar fatty growth, which lies between a greatly thickened pia and a fibrous tissue capsule representing the arachnoid. The cauda equina appears as several nerve trunks encased in a fibrous tissue capsule and separated by diffuse masses of fatty tissue resembling that seen in the medulla and the cord, the whole being surrounded by a thick connective tissue capsule. In the conus medullaris there are several small ependyma-lined cysts with neuroglia tissue in the intervening spaces (Fig. 5). Throughout the tumor, there is no sign of embryonic fatty tissue or of anything which would indicate rapid growth. In the cervical region, however, the remains of the dorsal columns are represented by scattered nerve-bundles separated by strands of fibrous tissue continuous with that of the pia mater, in which are numerous fat cells, an appearance which suggests that there was at one time some degree of active invasion of the cord itself by the lipomatous cells. This tumor, therefore, must be regarded as benign and of congenital origin.

Microscopically then, we find that the tumor is intradural, lipomatous in nature, and essentially benign, though showing some evidence of slight invasion of the substance of the cord itself. The growth is surrounded by the pia arachnoid.

Finally, from perusal of the literature, it is evident that such a condition is exceedingly rare, except in connection with spina bifida. Furthermore, in the few cases where it has occurred in the absence of the latter condition, there has always been, with one exception, either some associated congenital malformation or something in the structure of the tumor itself to suggest a congenital origin. In brief, the question arises whether such a condition can arise independently of other congenital defects. The extensive and symmetrical involvement of the spinal cord makes this case unique.

Let us summarize briefly the findings in this case. Anatomically there are present two small white tumors at the cerebellar-pontine angles, and a spinal cord symmetrically enlarged throughout its length, except for a constriction a few cm. above the terminal filament, the enlargement being due to a similar firm white growth inside the spinal membranes, which has flattened the cord itself and crowded it ventrally. Microscopic examination shows this growth to be composed of cells having the appearance of normal fat cells, the fat contents of which react to Sharlach R and Osmic acid, like normal human fat. The fatty growth is entirely limited to the confines of the pia arachnoid. In addition there are present cleft-palate and hare-lip, absence of the left kidney and ureter, and chronic internal and external hydrocephalus.

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For a brief general treatment of the subject the reader is referred to Lubarsch-Ostertag, "Ergebnisse der Pathologie und Anatomie," 1903; Erste Abteilung, p. 468.

DESCRIPTION OF FIGURES.

FIG. 1. Cerebellum, inverted, showing fatty tumors at cerebellar pontine angles.

FIG. 2. Spinal cord with the dura reflected, showing the cord and growth enveloped in the pia-arachnoid.

FIG. 3. Section of cervical cord, osmic acid impregnation, picric acid and acid fuchsin counterstain. Note flattened cord and connective tissue on dorsal surface, which surrounds nerve bundles in the dorsal columns.

FIG. 4. Section of lower lumbar cord; same technic as Fig. 3.

FIG. 5. Longitudinal section through the conus medullaris, showing fatty tumor and ependyma lined canals.

THE ABUSE OF THE X-RAYS IN THE TREATMENT OF SKIN AFFECTIONS.

BY JOHN T. BOWEN, M.D., BOSTON.

THE attitude of the practitioner of medicine toward the adoption of new therapeutic measures must be regarded as essentially dependent on individual temperament. A short and easy road to a permanent cure is the aim of everyone engaged in trying to heal the sick, and to those having special opportunities, the testing of new remedies and methods of treatment is a privilege of the utmost importance and value. Such a privilege, however, is not vouchsafed to the many, and for them the decision as to what remedies are safe or valuable for present use, must be based on the testimony of others. It is here that the matter of temperament thrusts itself into the foreground. By one of somewhat conservative nature, who has seen many methods that have been heralded as marvellous in their results, either wholly superseded or reduced to a very subordinate place in the catalogue of resources, much is demanded of a new method before its adoption,—above all, a reasonable certainty that it will at least do no harm. For the enthusiast anything new is attractive, and the calm deliberation as to whether a worse subsequent condition may result, is consistently lacking.

The discovery of the Roentgen rays offered at the outset hopes of a wide field of application in the treatment of skin diseases. These hopes have been on the whole only partially realized.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.

The place of the x-rays in dermatological therapeutics is at present a limited one, not so extended as that of many of the older methods that at times have seemed in danger of eclipse. This place, although small, should, however, be reserved for it. Unfortunately, the *abuses* of this treatment have had the result in great measure of prejudicing against its beneficial uses. Briefly, the legitimate use of the x-ray in this class of diseases is confined chiefly to the following cases: (1) Surgically inoperable epitheliomata, especially those involving the orbit of the eye. (2) Epitheliomata, or other malignant neoplasms in cases in which the patient absolutely refuses radical surgical intereference. (3) Small cutaneous epitheliomata in certain selected cases, in which a good cosmetic result is very important. (4) Sycosis, and obstinate pruritus of local or general character. (5) In a few other dermatoses, such as obstinate patches of psoriasis and eczema, in mycosis fungoides, and in a few rare affections, the x-ray may occasionally be used with great advantage.

The disadvantages of the x-rays are chiefly those resulting from its improper use. The question of susceptibility has been much discussed, and need not concern us now. My chief object is to call attention to the disfiguring results produced by many who make use of this method without proper training or experience. To use this method properly and safely one should have had a certain apprenticeship. No one, however brilliant, can seize a knife for the first time and perform expert surgery. In the same way, no practitioner can buy an x-ray outfit and properly treat, without practice, skin affections of which he has little knowledge. He thinks, perhaps, that he is sure of his diagnosis, and has read statements that the x-ray has given wonderful results in similar cases. It is from such sources as this that the many disfiguring scars and blemishes are produced, that have the double misfortune of prejudicing other physicians or patients against the legitimate use of this method. Such instances have come to my knowledge with deplorable frequency of late. To cite one or two recent cases at random:—

Case 1. A woman of 38 had had an erythematous and scaling eczema of the neck and parotid region and arms that had extended over several years and had not yielded to treatment. For nine months she had had a weekly treatment by the application of the x-rays to the affected parts. When seen, the whole of the area that had been exposed to the treatment was covered with pronounced telangiectases and atrophic scars. On the arms there had developed in addition a sclerodermatous condition. The eczematous condition was still present but was masked by the disfigurement resulting from the treatment.

Case 2. A woman of 45 had been exposed several times to the x-rays by a dentist on account of an obscure pain in the jaw. When seen there was marked pigmentation, erythema and scaling of the whole of the left cheek, to which the rays had been applied. The hair had fallen completely over the temporal region, which had not been properly protected from the action of the rays.

Case 3. A woman of 30 had had four years' previous to the time when she came for relief, a number of exposures to the x-ray for the removal of what she describes as a fine lanugo growth of hair on the chin and lower parts of the cheeks. The whole surface thus exposed was covered with numerous disfiguring telangiectases, and superficial and atrophic scars, so that the patient was much embarrassed when appearing in society. I have seen and treated this patient for the disfigurement described quite constantly *for the last three years*, and she is still under my care and following my instructions. I have succeeded in accomplishing a good deal as far as lightening the effect produced by the telangiectases is concerned. A partial improvement is, however, all that can be hoped for in such a case, but the disfigurement was so marked that the prospect of any betterment was eagerly welcomed.

These instances could be largely multiplied from my own experience alone. Conversation with those who have personal acquaintance with x-ray exposures confirms these observations.

Dr. Walter J. Dodd writes to me as follows: "With regard to our conversation of some days ago, concerning the injuries resulting from the use of the x-ray in both therapeutic and radiographic work, I would say that I have seen several cases this year that have shown marked erythema, and one case a severe alopecia, resulting from the use of the so-called dental coil, which is used in taking dental films. I have seen other cases that showed a considerable atrophy of the skin accompanied by marked telangiectases, resulting from repeated exposures in the treatment of skin lesions. I agree with you that it is to be regretted that such a useful agent, both in therapeutic and diagnostic work, should get into ill repute in the minds of the medical profession as well as the laity. In my opinion it is all due to a lack of knowledge of the dangers of these so-called "harmless machines." There is absolutely no danger to the patient today, if certain precautions are observed. By interposing a leather or aluminum filter between the tube and the patient all danger is removed; also the tube should be at least fourteen inches from the skin—twenty is better. Under no circumstances should skin lesions be treated week after week, as is done in some cases, by this method."

Furthermore, while small superficial epitheliomata, such as have been treated successfully by dermatologists for many years by means of curetting and cauterization, may be equally well and painlessly removed by the x-rays, the large and deeper seated growths are distinctly unsuited to this method. Harm is frequently done by temporizing with these inadequate means when radical surgery is imperatively indicated.

To emphasize once more the results of the abuse of this method of treatment, a patient not

long ago was advised by me to undertake exposure to the x-ray for the healing of an epithelioma of the eyelid, that was not suited to radical excision. The practitioner who sent the patient to me for an opinion, objected that he had seen so many bad results from the use of the x-rays in therapeutics that he was inclined to abandon it altogether. This prejudice cannot be wondered at in view of the unfortunate results so frequently seen. It is a fair question for discussion whether, as at present employed, this method of treatment may not, on the whole, be a source of more harm than good.

It has not been my purpose in this article to discuss freely the dermatological uses of the x-ray. This subject is far too extensive for my present space. Numerous lengthy articles, and even books dealing with this matter may be found in the literature. The x-ray has proved to be, in proper hands, a useful addition to our means of treating certain carefully selected cases of skin disease, especially the affections that I have mentioned. It is to the *abuse* of the method that I wish to call attention, and to show:—

1. That a great many cases of unnecessary disfigurement, more obvious than the original affection, are caused by an improper use of the x-rays.

2. That the cases suitable for this treatment can be selected only by those who have some considerable knowledge of skin affections.

3. That this method of treatment requires especial study and training and should not be regarded as an easy and safe procedure by those unskilled in its use.

A STATISTICAL STUDY OF REMISSIONS IN GENERAL PARALYSIS.*

BY HARLAN L. PAINE, DANVERS, MASS.

(No. 36 of the Danvers State Hospital Contributions.)

Since the opening of the Danvers State Hospital there have been nearly 17,000 cases admitted, and of this number 1,420 were diagnosed as cases of general paralysis.

Southard, working with Danvers State Hospital material, reviewed 250 autopsied cases and concludes, regarding accuracy of diagnosis, in general paralysis, as follows: The accuracy of diagnosis in general paralysis was 9 out of 10, that is to say, out of 10 cases, in which medical persons, or at least medical men of the average Danvers type, made the diagnosis, there would be one out of ten which would not turn out at autopsy to be a case of general paresis." Taking this percentage of error into consideration, there would be 1,279 that could reasonably be considered to be cases of general paralysis.

The clinical records of these 1,420 patients diagnosed as general paralysis have been analyzed and the cases that have shown remissions studied. One hundred and thirty-two patients showed improvement to such an extent that it can be said that the patient had a remission. On analysis 37 of these cases were rejected as not showing enough symptoms to make the diagnosis certain, leaving 95 that were undoubted cases of general paralysis that showed a remission.

No case was considered a case of general paralysis that did not show the following physical signs: Alteration of the pupillary reaction, as sluggish or stiff reaction to direct light; alteration of knee jerks; motor incoördination as shown by impairment of speech, handwriting, or tremor.

For the mental picture it was required that the patient should show memory defect, judgment defect and some form of emotional disturbance.

The degree of improvement required to be considered a remission was that the patient should be up about, free from conduct disorder, able to care for himself in every way, showing no periods of confusion, delusions or hallucinations. Slight deterioration usually was noted in the histories of these cases.

The 95 cases that have been studied showed the above physical and mental symptoms during their stay in this hospital, and improved to the extent noted above.

Out of these cases considered, 47 were cases whose conduct and symptoms would place them in the class of the exhilarated form of general paralysis, 37 belonged to the demented type, 11 to the depressed type.

In 29 of the cases, 30%, a history of syphilis was obtained, and the duration of the interval between the infection with syphilis, and the onset of the symptoms of general paralysis varied between 4 and 25 years, the average interval being 13 years and four months.

Eight of these cases received active antisyphilitic treatment; 6 at time of infection, 2 when their mental symptoms developed. In these 6 cases that received treatment at time of infection it is recorded that their treatment lasted two years. The average age of infection in 24 cases in which it could be ascertained was 24 years. The average age at which the general paralysis began in all the cases was 32 years.

Sixty-two of the cases gave a history of having been steady users of alcohol. In 7 it was definitely stated that the patient had never used alcohol.

In only 16 cases, or nearly 17% of the cases, were hallucinations recorded, 8 being wholly confined to the auditory sphere, 6 having both auditory and visual, 1 only visual, and 1 case suffering from all forms.

The duration of the general paralysis before the beginning of the remission varied between 2 months and 10 years, the average duration of the disease before remission being 1 year and 9 months.

The duration of the remission varied between

* Read before the New England Society of Psychiatry, Oct. 3, 1912.

2 months and 13 years, the average duration being 11 months in the 53 cases in which the history was sufficient to show; 36 cases left the hospital during their remission and were not again heard from.

Definite information was received that one case that left the hospital was committed to another institution after a remission of 20 months; 7 cases are in the hospital and are still enjoying a remission.

In the 52 cases that remained in the hospital until they died, it was found that 2 died in convulsions during the remission, and the others lived from 2 weeks to 5 years after the remission ended, the average duration in these cases being 1 year and 9 months.

The most interesting fact shown by the study of these cases is the presence of paralytic and apoplectic seizures. Only six of the cases gave a history of suffering from either a paralytic or apoplectic seizure before the remission, and only one showed a paralytic seizure, while two gave a history of convulsions. In three cases apoplectic seizures were noted, but they were limited to a loss of speech for a few hours.

CONCLUSIONS.

Therefore, from a study of unselected and consecutive cases of general paralysis admitted to this hospital during a period of 34 years, only one case with a history of a paralytic seizure showed a remission, and only 6 cases with a history of any form of cerebral insult showed a remission.

Inversely then, it may be said that if a case of general paralysis in its early stage has a paralytic seizure, the chances are very small that that case will have a remission.

Clinical Department.

NON-UNION OF THE CLAVICLE IN A CHILD.*

A CASE WITH A LESSON.

BY WM. PEARCE COUES, M.D., BOSTON.

NON-UNION of the clavicle in children is so rare that it is of interest to report a case, the first which has come to my personal attention in some years of treating many clavicle fractures in children. A remark of an expert surgical pathologist and surgeon concerning this case, that the clavicle would not unite without open operation no matter what the cause of the non-union was, stimulated me to careful study of the matter and a resolve to make it unite without operation if possible.

FLORENCE B., eleven years of age, was seen at the surgical clinic of the Boston Dispensary in April, 1912. On March 16 she fell on the sidewalk over some wire. She struck, hitting her right shoulder. The blow was not a severe one. She was treated at the Relief Station immediately after the accident and presented herself for treatment at the Dispensary shortly after this.

There was nothing remarkable in the history. The mother and father were living and well. The father had had typhoid fever and nervous prostration. There were no other children and no miscarriages. The child had had mumps, measles and whooping cough, but no serious illness. There had been no eye trouble and no deafness; tonsils had been removed four years ago. When I saw the patient about April 1, the arm had been put up with a modified Sayre dressing. This had caused some pressure over the olecranon and there was a slough here that refused absolutely to heal, despite all measures. The arm was put up in a Velpeau with great care, but the slough was resistant to treatment. The elbow became very stiff and the hand began to assume the claw-like look of Volkmann deformity. After three weeks there was considerable callus over the clavicle fracture and it seemed as if it would soon be united, but shortly after a careful examination showed soft callus and no real bony union. The slough over the olecranon persisted.

A very careful examination of the child was made at this time. She was of average height for her age, very well developed and nourished. There were no scars on the lips and absolutely no other outward signs of inherited syphilis. Notwithstanding this an x-ray of the leg bone was taken which showed a quite marked periostitis of the tibia. It was found on careful inquiry that this was the mother's second marriage and that she had had a child by the first marriage which I believe did not live long, but she had had no miscarriages. An x-ray of the father's and mother's leg bones were taken which certainly was suspicious of specific periostitis.

The slough over the olecranon was dressed after this with mercurial ointment and the child was put on mixed treatment. In a few days there was a wonderful improvement. The slough healed almost like magic. The child felt very much better physically. (She had not been feeling well since the accident.) In six weeks the clavicle was practically solid. By August there was no pain or trouble and the child was well. Immobilization for practically three months.

Examination, December, 1912, showed the clavicle as solid as a rock and the child in perfect health. All movements of the shoulder were perfect. There was no deformity at the site of the fracture which could hardly be detected. There was, however, some shortening of the shoulder. The leg bones, which were quite rough and thick in June, have smoothed out entirely. Examination of the eye grounds of the father and mother and the child proved normal. There was no sign of any interstitial keratitis in the child. It was stated that the fall was a comparatively slight one which led to this accident, which is often the case in clavicle fractures in healthy children.

That the bones of syphilitics are prone to fracture under slight traumatism is well known. Dron[1] in 1871 showed that the fractures in syphilitics took a much longer time to become solid than in healthy people. That syphilitic bones should break spontaneously or with very slight

* Read at a meeting of the New England Pediatric Society, January 25, 1913.

traumatism where there is trouble easily determined by the macroscopic examination, does not seem remarkable, but the fracture of seemingly healthy bones in young syphilitics is another matter.

Charpy[1] studied this question and found that the resistance of a bone of this character is much diminished. For example, he found that the fibula would break when subject to a pressure of 150 or 100 kilograms and that it took the weight of 300 kilograms to break the fibula of a healthy man. The density of the bone is diminished; instead of being 1.60, it is 1.50. Thus we see that the syphilitic bone without apparent lesion has a lesser resistance and diminished density. The quantity of calcium in these bones is diminished. Thus it was found that in the fibula of tuberculous individuals there was found 2.92 of fluoride of calcium, in healthy people 2.43, and in syphilities 1.99. Sometimes these fractures are produced by muscular violence and this fact should always be thought of under these conditions.

The key to the situation in this case was the stubbornness of the slough over the olecranon in healing, which led to the taking of an x-ray of the shin bones. I hope that if the report of this case accomplishes nothing of great interest it will help in teaching the often forgotten lesson,—when things do not go right in wounds and fractures think of syphilis.

REFERENCE.

[1] Gaucher: Syphilis des Viscères et de l'appareil locomoteur, p. 545-547.

A CASE OF BLOOD CYST OF THE CHEST WALL.*

BY WILLIAM PEARCE COUES, M.D., BOSTON.

Marion W., five years of age, was seen at the Surgical Clinic of the Boston Dispensary, December 12, 1911. The history was as follows: The father and mother are living and well. The child has always been well except for pneumonia, whooping-cough and chicken-pox. Present Illness: For three weeks or more a swelling has been noticed over the anterior part of the left chest, extending up to the shoulder and to the anterior axillary line. The swelling has caused the child no inconvenience and has not been painful. Physical examination showed a well-developed and nourished child of five years. The hemoglobin was 85%. Examinations of the nose and throat were negative. The reflexes were normal. The abdomen was soft and there were no masses felt. Examination of the chest showed the following: There is a mass about the size of a small cocoanut occupying a position on the left anterior region of the chest, from under the shoulder to the anterior axillary line. This mass is not reddened or tender to palpation. There is no communication from the skin covering the mass to its substance. It has a semi-fluctuant feel, somewhat similar to that observed in certain lipomata. The mass can be moved fairly freely about on the chest but cannot be grasped entirely in the hand. There were no enlarged axillary glands felt. A radiograph of the chest is negative; no signs of a tumor being seen.

The wards of the Children's Hospital at the Dispensary not being completed the case was referred to Dr. James S. Stone at the Children's Hospital. Through Dr. Stone's courtesy I was enabled to follow the case at this institution. The diagnosis here was Cyst of the Axilla. An operation was done by Dr. Stone, January 1, 1912. "An incision was made over the tumor, parallel with and just above the lower edge of the pectoralis major muscle. The incision was carried down to the muscle so that the tumor lay entirely underneath it. Exposing the tumor it was found to be cystic and contained a blood-stained serum. With blunt dissection the tumor was readily shelled out except at its deeper portion. On the outer side it lay in direct contact with the larger vessels and brachial plexus. It extended far upward underneath the clavicle and on the inside it lay against the chest wall. On the outside against the pectoralis muscles. When the tumor was almost completely removed it ruptured, and the deeper portion, being very thin walled, had to be removed separately. The wound was closed by suturing the fascia by fine chromic catgut and the skin with plain catgut. One very small piece of rubber dam was inserted for drainage."

On January 13, temperature was 104.6, and the urine contained numerous pus cells. The wound was clean. The child was put on urotropin. On January 17, there was bright red blood in the urine. An x-ray of the pelvis was negative. On the 20th there was an irregularity of the heart but no other symptoms. On the 25th the irregularity had subsided; the child was up, and the urine clear. The wound was healed completely. Diagnosis of Acute Pyelitis was made. The child was discharged and was to report to the medical out-patient department but has not since been heard from at the Dispensary or Children's Hospital, although efforts have been made to get into communication with the mother.

It is greatly to be regretted that the specimen was lost so no microscopic examination could be made. Macroscopically, the tumor was a thin walled cyst filled with what seemed to be altered blood or serum, into which there had been enough hemorrhage to give the fluid the outward characteristics of macroscopic blood.

The size, position and character of the cyst are of interest. In a considerable experience it has not been my fortune to see a growth of this character in this position.

"A cyst," according to Coplin,[1] "consists of a connective tissue membrane, a supporting wall lined by epithelium or endothelium, forming a cavity, the contents of which may be fluid or semi-fluid, uniform in composition or made up of a mixture of similar or dissimilar substances. When the wall of the cyst is passive and uninfluenced by the retained or extravasated contents in a mechanical way, only the cyst is said to be simple or unilocular. Cysts are divided into classes from their anatomic and pathologic characteristics. We may have retention cysts, exudation cysts, cystomata (hygroma), extravasation cysts, dermoid cysts, parasitic cysts, and, finally, cysts resulting from necrotic and degenerative changes in solid tissues."

* Read at a meeting of The New England Pediatric Society, Jan. 25, 1913.

The characteristics of this cyst, its location, macroscopical appearance leads me to believe, even without the pathologist's report, that in all probability it belongs to the third class, that of cystoma, that is, "a cyst of new formation." According to Coplin, "the wall is of mesoblastic origin lined by a flattened layer of connective tissue cells (endothelium)." The fluid in these cysts is most generally clear, but it may be colored or dark like blood, as a result of bleeding into its cavity. These cysts are most often encountered in the neck and axilla. They are for the most part of congenital origin, as Coplin points out, sometimes associated with macroglossia. They are nearly allied with cavernous lymph-angiomata.

Operations upon these tumors seldom allow of the exact anatomic structure, from which the cyst springs, being ascertained. This is on account of the often great depth of attachment, of hemorrhage, and of friability of the cyst wall, or all these conditions combined, as in the above case. Certainly it seemed as if this cyst in question did not spring from the axilla or the neck, but from the tissues forming the deepest part of the anterior chest wall under the clavicle. The only other cystic condition which one would consider in this case is the extravasation cyst. "These cysts are formed around distended or ruptured vessels. They may occur in any tissue. The cyst wall is usually thin and its inner surface smooth, but the reverse may be true." It does not seem as if the cyst in question belonged to this class.

The lipoma-like feel of the cyst was evidently due to its situation, directly under the great pectoral muscle. It is a point of value in the diagnosis of similar masses or tumor growths, that overlying muscle gives a feeling on palpation exactly similar to a solid or nearly solid tumor.

REFERENCE.

[1] Coplin, W. M. L.: A Manual of Pathology. Fifth edition. 1911, p. 361-365.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

VAGINAL CORPUS AMPUTATION.—ALEXANDER OPERATION.—GONOCOCCUS VACCINES.—ROENTGEN THERAPY IN GYNECOLOGY.—ETIOLOGY OF UTERINE BLEEDING.

VAGINAL CORPUS AMPUTATION.

ATTENTION has again been called by Rieck[1] to the value of vaginal amputation or resection of the corpus uteri. The feature which he especially emphasizes in the operative technic is the suturing of the reflection of the bladder peritoneum to the posterior wall of the uterus at an early stage in the operation. It should be sutured below the line of the proposed amputation, thus enabling the surgeon to carry out the rest of the operation extraperitoneally. This advantage is certainly worth considering in the perfecting of the technic, but its value has not yet been demonstrated by a sufficient number of cases. After delivering the fundus through the uterovesical space and attaching the bladder peritoneum to the posterior wall of the uterus by a continuous suture, the upper part of the broad ligament is tied on each side and the fundus removed by an incision passing obliquely downward and forward. The vaginal wall is closed over the stump from side to side, the sutures passing deeply enough to check any parenchymatous bleeding of the uterus.

The procedure is a distinctly valuable addition to operative gynecology, and is rapidly becoming better known and more widely adopted. It is an excellent operation for hemorrhages from the uterus in which total hysterectomy is not indicated. It has the advantage of the abdominal subtotal hysterectomy, without the disadvantages of the abdominal operation. According to the conditions present, the corpus may be amputated or resected, and in those cases in which it is a distinct advantage not to cause cessation of the menstrual function, resection is the operation of choice. There is less loss of blood than in the wedge-shaped excision devised to accomplish the same result. The reports of those who have employed the operation are very favorable as to its comparative freedom from danger, its simplicity and its adequacy with proper indications.

As a method of dealing with early pregnancy in cases of tuberculosis, vaginal amputation of the corpus uteri is recommended by Kroemer.[2] The treatment of pregnancy complicated by tuberculosis of the lungs involves vexing questions. If palliative treatment alone is tried, the tuberculous process may advance with startling rapidity; and, in general, pregnancy exercises a very harmful effect on the patient with tuberculosis. If this pregnancy should go to term, the child is heavily handicapped in the struggle for existence. Inducing abortion can hardly be called a satisfactory method of treatment, on account of the high mortality, and premature labor gives even worse results. The only thing that can be said in their favor is that they are generally considered better than noninterference.

Prophylaxis may accomplish something, and as it is too much to expect that women with tuberculosis will avoid entirely the possibility of becoming pregnant, sterilization has been recommended and tried. As an efficient and satisfactory method of prophylaxis and as a means of treatment of pregnancy up to the fifth month, Kroemer recommends vaginal amputation of the corpus uteri. The convalescence is smooth and rapid, and the technic is easy. Briefly it consists in the following steps: The anterior vaginal vault is incised and the bladder freed to the peritoneal cavity. The edge of the peritoneal

reflection on the bladder is sutured to the vaginal wall to cover the bladder completely with serosa. The opening is made wide enough to deliver the fundus, the cervix being pushed toward the sacrum during the procedure. While this delivery is usually easy, even if a five months' pregnancy is present, laceration of the fundus should be avoided as considerable hemorrhage may occur. Clamps are placed on the broad ligaments, leaving in the tubes and ovaries, and incisions made between clamps down to the uterine arteries, which are clamped, cut and tied. Then a high amputation of the fundus is easily performed. The posterior wall is left higher than the anterior, and by it the stump is covered in with serosa. The broad ligament clamps are replaced by sutures and the adnexal stumps attached to the posterior wall of the cervix. Kroemer fixes the upper angle of the colpotomy wound to the cervical stump by a suture of silk-worm gut, to be removed in three weeks. The advantages of this form of treatment are (1) simple technic with slight loss of blood; (2) avoidance of drain on the patient by loss of body fluid during the puerperium, and possibility of later uterine bleeding; (3) certainty of avoiding later conception; (4) avoidance of the symptoms of the menopause as the ovaries are left in and a portion of the endometrium may be retained; (5) in some cases a cystocele may be cured by supporting it by the cervical stump.

ALEXANDER OPERATION.

The persistence of the Alexander operation for retro-displacement of the uterus as a well-recognized procedure, in itself indicates that it has some merit, though occasional sharp attacks are made in attempts to discredit it. The value of an operation can be estimated only after a comparison of what it is meant to accomplish with what it actually does accomplish, and as a preliminary in the discussion of the value of any operation the limits of its applicability must be settled. Some operators use the Alexander operation frequently and with great satisfaction to themselves and to their patients. Others reject it altogether, Schickele[3] thinks, because they make demands upon it which it cannot satisfy. First of all it should be employed only in cases of mobile retroflexion, in which the pessary retroflexion should be operated on, but in those uncomplicated cases in which operation is indicated, the Alexander-Adams operation is the method of choice. It may be used also as an accessory operation in cases of moderate descensus of the uterus following childbirth, but only the former group of cases is discussed by Schickele in this paper. About thirty per cent. of the cases in the Strassburg clinic were in young or nulliparous women. Encouraged by the good results in the early cases, the indications were extended to include cases in which some traces of inflammatory adnexal disease were to be made out, and even patients with large and heavy uteri. Relatively more recurrences were noticed among these cases, so that the practice of late has been to exclude all cases with adnexal inflammatory disease, and enlarged and hypertrophied uteri.

Of three hundred and fifty cases operated on, one hundred and seventy-one could be examined. Of these there were eleven recurrences, or six and four-tenths per cent. Of one hundred and thirty-six cases in whom there had been no sign of adnexal disease, or chronic metritis, there was one recurrence, following childbirth, cured by the use of a pessary. Among cases operated on since the exclusion of all inflammatory cases, there had been no recurrence.

A few words may be said about the technic. A short incision is preferred with splitting of the anterior covering of the canal for two centimeters to expose the ligament, if necessary. Care should be used in pulling on the ligament lest it break off. If it does break, the peritoneal cavity should be opened and the stump caught. Primary healing is important for a successful result. Schickele is of the opinion that with proper indications the operation is entirely satisfactory, and there is no need of an operation to take its place, as is suggested by so many operators.

GONOCOCCUS VACCINES.

Conservatism in the treatment of gonorrheal infections in the female pelvis has gained ground rapidly in the past few years. Only when the injurious effects of removing the pelvic organs were carefully studied, could a comparison be made with the less radical forms of treatment. The immediate danger of operation in the presence of acute infection must not be overlooked. Though distinctly better results are obtained by non-operative than by operative treatment, much remains to be desired when only thirty per cent. of the patients are freed from objective and subjective symptoms, and only seventy per cent. are freed from disturbing symptoms. The difficulties in the way of cure are the resistance of the gonococcus to treatment when it has penetrated the tissues of the internal organs, the difficulty of influencing sacs of pus by any non-operative treatment, and the difficulty of preventing re-infection.

It has not been possible to produce passive immunity to the gonococcus by the use of sera, but experiments to produce active immunity have been more successful. Especially in gonorrheal epididymitis and arthritis has vaccine therapy been efficacious in bringing about improvement and cure. Two questions with reference to the use of vaccines in chronic gonococcal infections of the pelvic organs in the female suggest themselves: (1) whether therapeutic results can be obtained; (2) whether the injection of the vaccine in the case of infection produces a reaction of sufficient specificity to throw

light on the nature of the infection. Two series of cases were treated by Fromme[4] and Collmann in attempting to answer these questions, and two methods of using vaccines were tried. In the former small doses, as favored by Wright, were employed. In the latter, larger doses of arthigon, (a gonococcus vaccine prepared by a manufacturing house in accordance with the directions of Bruck), were used.

To determine the value of the gonococcus vaccine as a method of differential diagnosis, eighty patients were treated by the injection of a small dose of vaccine into the thigh. The diagnosis of the presence or absence of gonorrheal infection was determined sometimes with certainty, sometimes only with probability, from the history and examination. The local reaction proved to be of little value; while it was marked in all the severe cases, it was also severe in several cases in which there was no evidence of gonorrhea. The reaction in the disease focus was little more conclusive. While some patients had pain in the abdomen, most did not, and several of the patients with no gonorrhea showed marked pain. Of these one was a virgin with a myoma. As to the general reaction, as manifested by a rise of temperature, apparently the more recently the fever of the attack had subsided, the more likely it was to recur following the injection. But the reaction seemed to be of little value in differential diagnosis.

Therapeutically, the vaccine was of more value. The diagnosis was made here by the finding of the gonococcus in the acute cases; in the chronic cases, by the history and course of the disease. Gradually increasing doses of vaccine, injected at intervals of four days were employed. The local, focal and general reactions, if present, diminished after the first injection and generally disappeared by the fourth or fifth. The symptoms in the cases of inflammatory tumors soon improved rapidly without, however, showing corresponding objective change. Acute gonorrhea seemed to be affected in no way by the vaccine therapy, as the disease progressed to infection of the vulvovaginal glands and of the uterus. When once in the uterus the infection was not controlled by the vaccines, for pyosalpinx developed while under treatment. Circumscribed foci of infection, as subacute or chronic pyosalpinx, on the other hand, showed rapid disappearance of the subjective symptoms, though even after weeks or months there could be made out little objective change. Of forty-five cases of pyosalpinx in various stages, ten seemed to be completely well, subjectively and objectively; nineteen markedly improved (tumor smaller and pain gone); six slightly improved and ten not improved.

Employing the larger doses of arthigon, one cubic centimeter, a reaction of diagnostic value was found, so that the authors regard a temperature of over one hundred and four-tenths degrees and a marked focal reaction as strongly indicating a recent gonorrheal tubal infection. Non-encapsulated infections, as in the urethra or cervix, show no reaction. Therapeutically the results are analogous to those with the smaller doses, and the relatively recent pyosalpinx, in which the febrile stage is passed, represents the most favorable cases.

From this study the authors conclude that vaccines may be considered a valuable adjuvant in the treatment of gonorrheal adnexal infections. They recommend the smaller doses, in fact, the smallest effective doses. In their cases no other method of treatment was used. With the addition of the usual treatment much better results may be expected and operative interference become even less frequently indicated.

It is interesting to consider here the conclusions of Schwartz[5] and McNeil, who have employed the gonococcus complement fixation test as a means of diagnosis. In infections below the cervix, except abscess formation, the complement fixation test gave a negative reaction. In infections of the cervix or higher portions of the genital tract, the test was positive in a sufficient number of cases to indicate that it may prove of considerable value in the diagnosis of infections of the uterus and tubes of obscure etiology.

ROENTGEN THERAPY IN GYNECOLOGY.

Since the introduction of the x-ray as a therapeutic agent, sufficient time has elapsed and sufficient reports of treated cases have accumulated in the literature to make possible some estimate of the procedure. It was to be expected that indiscriminate use would result in many failures, but in addition to failures, dangers have become evident. While even yet the nature of the action of the x-ray on normal and abnormal tissue is obscure, the late result in certain conditions is clearly relief of symptoms. Zaretsky[6] summarizes the results of a number of reported studies in which the influence on the course of gynecological diseases has been noted. In some conditions a cure has followed quickly in the experience of most investigators, while in others the efficacy is more questionable.

To the former group belong uterine bleedings without obvious cause, occurring about the time of the climacteric. There is considerable objection to calling these bleedings "climacteric," as the term suggests that they are a symptom of the normal menopause, a widespread misconception which has led to untold misery. The treatment in these cases is speedily efficacious, malignant disease having been excluded first, and the menopause quickly ensues. Uterine bleeding associated with the so-called metro-endometritis, not a very clearly marked clinical entity, also yields rapidly to the x-ray, and the more satisfactorily the nearer the patient is to the climacteric. Menorrhagia in younger women may be relieved by this treatment, and some cases of dysmenorrhea have been cured by a few exposures to the x-ray. The question of whether the

danger of permanent loss of function of the ovary is to be considered is answered in the negative, if proper exposures are made. Lasting suppression of menstruation following the x-ray is difficult to attain, even if sought, and doses quite effective therapeutically may be employed without danger of permanent harm.

Opinions as to the value of the treatment in benign uterine tumors are not unanimous. In some cases there has resulted a perfectly satisfactory cure; in others varying success or failure, with a few cases of death from hemorrhage. There is some basis, therefore, for the opinion that cases in which well marked bleeding is present should not be subjected to the treatment during the bleeding. The preferred time is just after menstruation has ceased. It has also been pointed out that increase of menorrhagia following x-ray suggests strongly the presence of a submucous myoma, which is generally regarded as unfavorable for this treatment. As a rule, small myomata in which the disturbances are not marked are the most favorable cases. In other cases, however, it may be tried if operation is contraindicated or refused, but if the symptoms are marked operation is always indicated.

In regard to the contraindications to the x-ray there is some difference of opinion, but generally severe anemia and marked disease of the heart and kidneys are regarded as definite contraindications, as is the presence of extensive inflammatory adnexal disease, of a pregnancy or of compression symptoms due to the tumor. Occasionally some general disturbances were complained of during or after the treatment but they were slight and transient. The symptoms of the induced menopause in those women near the climacteric were as a rule normal, that is, were considerably less marked than following an operative removal of the ovaries. The treatment has this advantage, that there is a gradual cessation of the function of the ovaries, and the organism has more time to adjust itself to the new conditions than if the operative removal of the ovaries is employed. A serious disadvantage is the time required, which may be months and even then operation may be necessary.

ETIOLOGY OF UTERINE BLEEDING.

Recent studies of so-called endometritis, metritis and metro-endometritis have considerably disturbed the older conceptions of these conditions. But while much that was formerly accepted is now seen to have had insufficient foundation in fact, it is not yet clear what is to be accepted in regard to the relation of these "inflammatory" conditions of the uterus to pathological uterine bleeding. It is not possible to reconcile the conclusions of all of the latest workers in this field and where the truth lies is not clear. It was in the hope of clearing up some of the doubtful points that the studies of Schickele's and Keller were undertaken.

The material, four hundred and thirty cases, is sufficiently large and the investigation was carried on with sufficiently painstaking care to give their conclusions considerable weight. They found in cases in which there was no observable disease of the uterus and the ovaries, a hyperplasia of the uterine glands, without any of the symptoms so often referred to this condition, namely, pain during menstruation, profuse menstruation and discharge from the uterus. The hyperplasia occurred at a time when it could not be attributed to the normal premenstrual change in the glands described by Hitschman and Adler. Comparing these changes in the endometrium with those present in another series of cases in which there was obvious disease, and noting the symptoms, they conclude that there is no reason for accepting any etiological relationship between the glandular hyperplasia and the bleeding. While the two may occur together, the hyperplasia may occur alone, and rather more marked bleeding was noticed in cases in which no hyperplasia was present.

What all the cases of bleeding showed in common was, not change in the glands, but change in the interglandular tissue, namely, vascular dilatation, hyperemeia and serous infiltration of the mucous membrane, which is produced by the causes of the bleeding. The changes in the glands which have been noticed in the premenstrual stage are not specific, but are due to hyperemia at that time, and occur at other times if the hyperemia is present from any other cause. Evidence confirmatory of the view expressed above is the comparative frequency of failure of curettage to cure the bleeding, and among those cases which are improved after curettage, the comparative rarity of hyperplasia of the endometrium. This suggests that the so-called "endometritis" is not a disease entity but one of the manifestations of a pathological condition which perhaps lies in a faulty metabolism of the uterus.

Certain investigators have emphasized the importance of changes in the myometrium in the etiology of uterine bleedings, that is, the relative increase of the connective tissue, giving a form of atony of the uterus, favors the bleeding as the uterus fails to contract normally. But marked variations in the relative amount of muscle and connective tissue are described without corresponding variations in the bleeding, and some of the worst cases of hemorrhage have occurred from uteri in which the muscle predominated and was in fact quite normal.

The chief symptom of "chronic metritis," bleeding, cannot stand critical investigation. The variations in the histological structure of the uterus (muscle and connective tissue) are quite within normal limits and are to be traced back to variations in the condition of the uterus under the influence of age, menstruation and childbirth. They are in themselves quite insufficient to explain the pathological bleedings which are found. "Chronic metritis" does not exist as a sharply defined disease entity, with

"atypical bleeding" as its most important symptom, nor as a pathologico-anatomical finding, with the signs of connective tissue hyperplasia and vascular thickening.

Critical study of the relation of changes in the ovary to uterine bleeding, the so-called small cystic degeneration, leads to the conclusion that there is no constant relationship between these two conditions. The independent occurrence of the symptom and of cystic follicles of the ovary is so frequent that there is no basis for the claim that they are related.

The study of the normal as well as the pathological cases leads to the conclusion that the cause of uterine bleedings is to be sought outside of anatomical changes in the uterus. It is in the ovary, to which the uterus is subordinate in so many ways, that the cause is to be found. Thus far no constant anatomical changes have been made out in the sexual gland and we cannot form any estimate of the function of the ovary from its structure. Since thorough anatomical studies have thrown no light on the subject, the ground is cleared for further work directed along the lines suggested by physiology, from which alone progress may be expected. The results of work along these lines the authors will report later.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Meeting Held at the Boston Medical Library on January 25, 1913.

James S. Stone, M.D., President; Fritz B. Talbot, M.D., Secretary.

Dr. William P. Coues, Boston, read two papers,

(*a*). A CASE OF BLOOD-CYST OF THE CHEST WALL IN A CHILD.*

(*b*) NON-UNION OF THE CLAVICLE IN A CHILD.†

Dr. Donald Gregg, Boston, read a paper on

INFANTILE BERI-BERI IN THE PHILIPPINES.‡

DISCUSSION.

Dr. W. B. Swift: Dr. Gregg's paper. I should like to ask the speaker if there is any typical appearance in the cross sections of the nerves that would enable one to differentiate from any other form of neuritis, whether peripheral, parenchymatous or interstitial. Lately I was interested in reading a paper by Dr. Andrews in which he has proved the malnutrition hypothesis by producing the disease in young puppies. He has fed with mother's milk and that has been followed by weakness and degeneration of the peripheral nerves and edema of the subcutaneous tissues, which are all symptoms of infantile beri-beri.

Dr. Gregg: Answering Dr. Swift. To the best of my knowledge there is nothing distinctive from the histological point of view. Cross sections of the nerves have been made, but do not show anything particularly distinctive. As I have never made a histological study of them myself, I cannot state whether it is perineural or interstitial, but the general opinion is that there is nothing distinctive in the type of neuritis. As to whether there are any cases of infantile beri-beri on the western coast of the United States or whether we are likely to come across any in the United States, I can merely say I have never seen any cases reported. There is no reason why it should not occur wherever there is adult beri-beri.

Dr. Talbot: Dr. Gregg's paper. I have been very much interested in Dr. Gregg's excellent paper and have been wondering while he was telling us about the diet, whether or not there was any connection in Manila between beri-beri and scurvy. The Scandinavian investigators have produced scurvy in guinea-pigs and a few dogs, and German investigators have produced it in rabbits. This was considered typical scurvy, but Prof. Reubner claims that it is not true scurvy. Beri-beri and, of course, scurvy is a disease which comes on a one-sided diet, or on a stale diet. I wonder whether scurvy and beri-beri come together, and if not, whether there is any scurvy in Manila?

Dr. Gregg: Answering Dr. Talbot. Scurvy is a rather rare disease, in my experience, in Manila. The natives have more or less green vegetables and they mix up their rice often with green vegetables to a certain degree. There is nothing in the infantile beri-beri to suggest scurvy. It always occurs in infants under three months. The differential diagnosis between scurvy and beri-beri is to be considered always, but the involvement certainly shows no evident malnutrition and no malformation. They are always pretty healthy looking babies. I have not seen a case of scurvy in the 2½ years I was in Manila. There are no signs of external hemorrhages. There is no particular periosteal tenderness, but the leg muscles are pretty tender and the whole legs seem to be painful on pressure or motion.

Dr. Elliott G. Brackett, Boston, read a paper on

DIFFERENTIAL DIAGNOSIS OF TUBERCULAR JOINTS IN CHILDHOOD.*

DISCUSSION.

Dr. Ladd: Dr. Brackett's paper. I would like to ask Dr. Brackett if there is any way by which he can distinguish a tubercular tonsil by inspection, not of the ulcerative type, but one that shows tuberculosis after it has been taken out?

Dr. Stone: Dr. Brackett's paper. There is great difference of opinion as to what constitutes a nor-

* See Journal, page 686.
† See Journal, page 685.
‡ See Journal, page 676.

* See Journal, page 673.

mal tonsil. It has been pretty definitely shown that size has very little to do with the presence or absence of tuberculosis. Many tonsils which appear on first inspection to be normal may contain small foci of tuberculosis. I think we shall have to wait on this matter until some of the throat men, as the result of their examinations, can tell us more in regard to tonsils.

We ought to use the advantages which we have at the present time as aids and as checks rather than as means by which we may obtain our first impressions. Our first knowledge, and that upon which we must always place our main reliance, we must get from careful histories and examinations. Later we may get what aid we can from the x-ray and from our other tests.

Dr. Scudder: Dr. Brackett's paper. I did not hear the first part of Dr. Brackett's paper, but was most interested in what I did hear. I agree with Dr. Brackett that it is important to emphasize the attempt to make a diagnosis in this group of chronic joint diseases so far as possible without depending upon special tests. The clinical story is of the very greatest importance in this group of cases, as Dr. Brackett has pointed out. In no group of cases has there developed less dependence upon physical signs than in cases of fracture of bone. Before we were able to make accurate diagnoses by means of the x-ray the physical examination had to suffice as a basis of diagnosis. I find today that the house staff of general hospitals where fracture cases are received for treatment depend primarily upon the x-ray, and that the house staff is losing, to a certain extent, the facility of diagnosis by physical signs. We are losing our cunning a little bit when we, as clinicians, depend too much upon special tests. Again in the group of diseases of the stomach, which is so much under consideration at present, there is a tendency to rely for purposes of diagnosis upon the special tests, and we know that the clinical story is of the very greatest importance in diagnosis of these cases. In gastric diagnosis the chemical, microscopical and x-ray facts are of very great assistance. I therefore agree with Dr. Brackett that in this special group of cases under consideration tonight we should depend more upon the clinical story and let special tests become more of secondary importance. And I would also emphasize the importance of this as a general principle which pertains in a large group of diseases. In other words we must not be diverted by special tests from the clinical story.

Dr. Prescott: Dr. Brackett's paper. When I was teaching at the Dispensary, the fourth year students were given cases to examine, to make a diagnosis. In February a young man, who was to graduate in June, was given an easy case to study. He was gone about half an hour when he came back and said he would not like to make an absolute diagnosis without having the man's stomach washed out and the contents examined, and then he ought to go to a surgeon and have his stomach opened to see if there were not an ulcer. It was a case of a man who, having taken a little too much drink had his stimulation cut off. The student was simply lost without having at his command a laboratory to make the analysis of the stomach contents or a surgeon to open the stomach and show him what was inside. This seems to me to be the danger which comes from too much overspecializing, a point which Dr. Brackett has brought out so well.

THE NORFOLK DISTRICT MEDICAL SOCIETY.

Meeting of February 25, 1913.

Dr. George A. McEvoy read a paper entitled

A NEW METHOD FOR THE DIAGNOSIS OF DISEASES OF THE STOMACH, WITH REFERENCE TO THE PROGNOSIS AND TREATMENT.

ABSTACT.

The writer described and demonstrated a simplified method of determining the position of the stomach through the use of a diagram. The method consisted in drawing a line from the end of the xiphoid to the umbilicus, a second from the middle of the clavicle parallel to the first line to about the level of the umbilicus, a third from the mid point of the first at right angles to meet the second, and the fourth from the end of the xiphoid parallel to the third to meet the second, thereby completing the diagram.

By the use of this diagram it has been possible to classify visceral conditions under three groups, which, it is believed, represent normal stomachs, stomachs the disorders of which are due to increased acidity, and others in which the symptoms are due to atony. It is expected through the intelligent use of this diagram to predict stomach disorders in their incipient stages and thereby afford the possibility of more prompt and effective treatment. The author distinguishes a broad stomach type from a narrow one and believes that the prolapse in the two cases as well as the dilatation vary according to a more or less fixed law. The symptoms also of the two types he believes may be predicted. This being the case the application of treatment becomes a relatively simple matter and the writer expresses hope that medical methods may again replace surgery.

Dr. Samuel Crowell read a paper on

GASTRIC SYMPTOMS DEPENDENT UPON DISEASES OF THE GALL-BLADDER.

ABSTRACT.

The author drew attention to the fact that affections of the gall-bladder were often responsible for symptoms simulating gastric disorders. Symptoms resembling chronic and acute indigestion are always present in gall-bladder disease, and it is usual for the first attack of colic to be preceded for a long period by mild disturbances of the stomach. The manifestations of gall-bladder disease are always referred to the epigastrium and not to the liver or gall-bladder. Such epigastric disturbance arises from infection of the gall-bladder and the bile ducts alone or accompanied by gall-stones. The writer warns against placing importance on the passage of gall-stones through the ducts as a cause of pain. This is often a fallacious diagnostic sign since, as a matter of fact, passage of gall-stones is very uncommon. Operations after colic show complete closure of the gall-bladder and common duct, either by swelling or by large stones firmly fixed and imbedded in the tissues. Two cases were quoted briefly to illustrate the points laid down in the paper.

Dr. C. P. Sylvester read a paper entitled

CHRONIC DUODENAL ULCER; ITS RÔLE IN CHRONIC DYSPEPSIA; ITS PRESENCE IN SYPHILIS.

ABSTRACT.

The writer discussed at length the sypmtomatology of chronic ulcer of the duodenum and pointed out the various fallacies in diagnosis due to the preconception that hyperchlorhydria, acid gastritis, hyperacidity and other so-called gastric diseases are pathological entities of common occurrence and painful symptoms. The incidence of duodenal ulcer, its occurrence in certain types of person, and its treatment, both medical and surgical, were discussed in considerable detail with reference to the work of Moynihan, Lane and others.

FIFTEENTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

Atlantic City, N. J., June 3 and 4, 1912. Hotel Raleigh.

(Concluded from page 659.)

SURGICAL MEASURES FOR THE RELIEF OF ABDOMINAL SYMPTOMS DUE TO PTOSIS OF THE STOMACH AND COLON.

Dr. Joseph C. Bloodgood, Baltimore: In the twenty cases, operated on since January, 1911, the indications for operations were stasis in the stomach, colon, or in both. All the cases had received medical treatment without relief. In formulating the operative procedure I was governed by the symptoms, x-ray findings, and conditions exposed on opening the abdomen. In most of the cases the x-ray findings were least helpful. I believe that I have demonstrated for the first time the relation of chronic dilatation of the duodenum to ptosis of the colon. The dilatation of the duodenum is the end result of ptosis of the colon. The stomach trouble comes on later, and the surgeon does not usually see the patients until they are in a very bad condition. The most satisfactory results have been obtained in the group of cases associated either with pyloric kink or with dilatation of the duodenum. The dilatation of the duodenum shows the simplicity of the relief of cases often diagnosed as chronic neurasthenia and many other conditions. The symptoms include pancreatic juice and bile in the stomach. The patients are usually very much depressed. For relief, resect the high right colon and suture the ileum to the transverse colon. The removal of the right half of the colon will not always relieve the patients of constipation and stasis in the colon. I have never resected the entire colon; but I believe that if we wish to restore the patient to a normal condition, we must do this. In some cases two operations may be necessary.

DISCUSSION.

Dr. Max Einhorn, New York City: I have in mind a condition somewhat similar to one that Dr. Bloodgood mentioned—a group of patients who have slight stagnation of the colon, in combination with bile and pancreatic juice in the stomach. On examining the stomach you will always find more residue of fat. In my cases we had to deal with an obstruction in the duodenum below the papilla of Vater. The main symptoms are severe pain and vomiting. The usual operation used to be gastro-enterostomy below Vater's papilla. No ptosis, as such, should be attacked by operation. If there are symptoms, an operation may be performed for their relief. There may be instances where operations on the colon are of benefit; but I think it an unnecessary procedure to subject a patient who is simply constipated to operation for prolapse of the colon, or any point of the intestines here and there. There must be something else present in order to render such an operation justifiable.

Dr. James Taft Pilcher, Brooklyn: There is another method that is applicable to these cases, which consists in raising these stomachs into the epigastrium, and raising the colon also, putting a row of six or eight sutures in the mesentery of the transverse colon and suturing it across the abdomen, two inches above the umbilicus. At the same time, the drag and the stasis that the condition occasions should be removed. Dr. Coffee, of Oregon, exhibited thirty or forty of these cases and the results were good; and in my repeated cases, the results have been satisfactory.

Dr. Jacob Kaufman, New York City: A very important question is, What is the primary factor that develops these conditions? Dr. Bloodgood's cases showed none of the conditions that Dr. Einhorn mentioned. I have seen few cases of the type which Dr. Bloodgood has presented, and in certain cases surgical intervention may be warranted. I think that we have, after all, to consider the cause of the primary factors,—the cause for the development of such pronounced types of atony and dilatation.

Dr. Walter B. Cannon, Boston: Most of these structures in the abdominal cavity are readily movable. If they have the specific gravity, approximately, of water, and are movable, I have some difficulty in seeing how there could be any great drag of one structure on another.

Dr. Allen Arthur Jones, Ann Arbor:, Mich.: I should like to ask Dr. Bloodgood whether he observed relief from symptoms such as he described, in cases operated on for floating kidney. I have seen two cases in which there was very signal relief from symptoms produced by a nephrorrhaphy. I ascribe considerable of their success to the fact that the transverse colon and cecum were lifted.

Dr. Chas. G. Stockton, Buffalo: In these cases I think the physician should consider the state of the abdominal walls. If there were marked tire and relaxation, it would be difficult to obtain that standard of intra-abdominal pressure to which Dr. Cannon has referred.

Dr. G. A. Friedman, New York City: Gastroptosis and enteroptosis are constitutional diseases. Many patients, besides these gastric and intestinal symptoms, have many general symptoms, and most of them are anemic. I cannot see how an operation can improve such a condition, when general treatment for the anemia is necessary. A patient with a gastroptosis may acquire an organic disease. The organic disease may be remedied surgically; but in the pure cases of gastroptosis which we see in the clinic, I do not believe that we should advise surgical interference.

Dr. Henry W. Bettmenn, Cincinnati: Nothing is clearer than that a merely anatomic relation of the

organs cannot be a matter of great importance. The point of drag is one that has worried me for a number of years. It is inconceivable to me that the lower abdominal organs do drag on the upper. If that were the cause of the symptoms, the placing of the patient on his back in bed for a number of days, or weeks, would overcome the symptoms. I think that the idea of the drag is erroneous, and will have to be given up. None of the patients whom I have seen who have had the colon raised up and attached to the abdominal wall, and the pylorus also raised, have been materially benefited; and some have been made considerably worse by the procedure. I believe that the use of the x-ray has led to an increase in the number of operations by those who do not thoroughly understand gastro-enterological problems, without a corresponding benefit. The surgeons in this department should go slowly. One patient will be benefited by the operation, where twenty will be either not benefited or made worse.

Dr. A. L. Benedict, Buffalo: There is a difference between the stomach that is in a state of ptosis, and the stomach that is normal in its relation, but is dilated. In many case reports, the word ptosis refers merely to a slight dilatation of the stomach and a sagging of the greater curvature.

Dr. Ludwig W. Kast, New York City: The greater curvature of the stomach may be five or ten centimeters below the level of the umbilicus, and yet the stomach may still perform all its work. It may take a little longer to do it, but the stomach will still be within the physiological limits. A stomach with a less lowered curvature, may not perform the work required. We must differentiate between the position of the stomach and the function of the stomach. I should like to know whether Dr. Bloodgood advocates operation for change in position or for change in function.

HYPER- AND HYPO-TONICITY OF THE VAGUS AND SYMPATHETIC NERVES AS CAUSES OF DISEASE OF THE DIGESTIVE TRACT—VAGOTONIE AND SYMPATHICOTONIE.

Dr. J. C. Hemmeter, Baltimore: Just as there is a myogenic and neurogenic tonus, so there is also a secretory tonus, which has not been so thoroughly studied. The latent period of secretion after stimulating the sympathetic or the chora tympani nerve supplying the sub-maxillary gland is greater after the nerve control over this gland has been abolished for several hours by freezing either nerve or by cutting it. This preparedness for giving a ready secretion upon adequate stimuli might be defined as secretory tonus. The threshold of stimulation also rises in experiments where the gland has been cut off from the nerve supply for several hours.

The entire neuro-muscular apparatus, both voluntary and involuntary, is in a condition of tonic activity due to the continual inflow of sensory impulses to the motor neurones of either spinal cord or brain or both. The doctrine of "Vagotonie" and "Sympathicotonie" assumes that the disturbances of peristalsis, innervation, and secretion in the digestive tract are due to permanently altered tonicity of the vagus and sympathetic; that is, either an exaggerated augmented, or a diminished tonicity of these nerves exists.

DISCUSSION.

Dr. Jacob Kaufman, New York City: I believe that the study of physiology of the digestive tract and its disturbances will help us a great deal more to understand gastrointestinal disorders and the treatment of these conditions than will the mere consideration of anatomical or pathologico-anatomical facts. Cases of irregular growth might be attributed to an interference with the activity of the liver by lack of thyroid secretion. By studying more specifically the disturbance either of the pneumogastric nerve or the sympathetic nervous system in connection with the internal secretion, we shall be helped very much in solving these problems.

Dr. Ludwig W. Kast, New York City: There is an application of the neurological and secretory facts to the clinical problems. The antagonism between the two nervous systems creates a condition of equilibrium in different directions in the musculature of the secretory apparatus. We frequently see conditions in which the patient has increased hyperacidity, and in which the motility is very intense. The pyloric portion is in a state of contraction. Without having duodenal ulcer, these patients have hunger-pains, the contraction having reached such a degree as to become painful. After the test-breakfast is evacuated, the secretion still goes on without having any stomach-contents to act upon. That is the time when the opportunity is given for the development of duodenal ulceration. Atropin benefits this class of cases very much symptomatically.

Dr. S. J. Meltzer, New York City: In such a vague field as gastro-enterology, so long as the investigators confined themselves to anatomy and chemistry, they had some facts to go on; but now that they are taking up the functional aspects of the matter, they are making wild hypotheses. The alleged facts that they have to go on have not been verified.

THE HISTORY OF RADIOLOGY OF THE DIGESTIVE TRACT FOR DIAGNOSIS OF ULCER AND CARCINOMA.

Dr. J. C. Hemmeter, Baltimore: Experiments of the author aiming at the photograph of the human stomach by the Röntgen ray were published in the Boston Medical and Surgical Journal, June 18, 1896. Investigations showing the possibility of photographing conditions accompanying cancer and ulcer by the x-rays and published in the *Archiv für Verdauungs-Krankheiten* in 1906 have been confirmed in this country and in Europe.

Mathematical or technical and personal or functional errors have to be avoided in the execution of the method. Failures to accomplish results by this method have been due to one or other of these errors.

A FEW IMPORTANT POINTS IN X-RAY EXAMINATION OF THE DIGESTIVE TRACT.

Dr. Franklin W. White, Boston.: The subject is treated from the clinician's standpoint. Examination of the mechanical factors of digestion is of the greatest importance in diagnosis. The x-ray is a brilliant method of examination. Comparisons with other methods of testing the motility of the stomach in ptosis, spasm, ulcer, and cancer show a great variability in the results; and there is need for great caution in interpreting them. There is great necessity for a standard bismuth meal. A study of peristalsis is possible only with the x-ray. X-ray tests of secretion are of small value. The duodenum is very difficult to examine, and its examination may be assisted by artificial distention. Delayed motil-

ity is of great importance. The colon may be successfully examined giving bismuth meal and administering an enema; however, great care must be exercised else the value of the results be impaired by various sources of error. The x-ray should be combined with other methods of examination in making the diagnosis.

DISCUSSION.

Dr. John A. Lichty, Pittsburg: I should like to know how much and what kind of bismuth should be used. I am not able to get an entire filling up of the stomach, and should like some information in regard to this. I believe that the x-ray will never replace the stomach-tube, for while the x-ray gives us more definite outlines, yet, on some points the tube is superior. I had a case where it appeared to be cancer of the stomach, but at operation it turned out to be cancer of the colon. I wonder whether the bismuth itself does not interfere with the normal emptying of the stomach; that is, in neutralizing the hyperacidity which exists in many cases, and thus interfering with the emptying of the stomach.

Dr. John C. Hemmeter, Baltimore: Quite a number of cases of bismuth poisoning have been reported after these radiographs, and I have directed my attention to seeing whether something else could not be used. Bismuth, when used for the relief of ulcer, must interfere with the impulses from the stomach, so that the delayed peristalsis may be due to that. I have tried some other things: aluminum silicate, calcium carbonate and calcium phosphate, and have succeeded in obtaining good shadows with them. None of this material is absorbed. There are two errors that hinder progress: one, the mathematical; and the other, the functional. The former is in the apparatus; and the latter, in the person. The exposures now occupy only a few seconds.

Dr Seymour Basch, New York City: Abroad they have used barium for the last two years, with good results. It is cheaper than bismuth, and no poisoning has resulted from its use. There were no bad symptoms reported from the thousands of cases in which it was used. Americans should take it up.

THE LACTOSE TEST MEAL IN THE ESTABLISHMENT OF ALIMENTARY HYPERSECRETION IN THE DIAGNOSIS OF PEPTIC ULCER.

Dr. Dudley Roberts, Brooklyn: I have given at some length the results of studies carried on with the lactose test-meal, since the time of its presentation to the American Gastro-Enterological Association, one year ago, when used in normal cases, in enteroptic cases with different conditions of secretion and motility, in the various surgical reasons which cause gastric complaints, and in ulcer. Under normal conditions, one hour after the digestion of the test-meal described, there remained not more than 50 c.c. With this, there were found from 50 to 100 c.c. of gastric juice. There was then a normal ratio of more than 1 : 1.3 between the residue of test-meal and the gastric juice still in the stomach. From my experience, it might be assumed that when the gastric-juice residue was three times that of the test-meal residue, there was hypersecretion of marked degree. In all cases there was alimentary hypersecretion. In some instances, this was even up to 1 : 9. In one case of chronic appendicitis, there was a hypersecretion with a ratio of 1 : 3.1. This occurred in only one instance. In the ulcer cases, the degree of hypersecretion was low.

Dr. John C. Hemmeter, Baltimore: I should like to know how long after the operation for gastro-enterostomy Dr. Roberts observed the cases.

Dr. A. L. Benedict, Buffalo: A carbohydrate diet rather tends to hyperchlorhydria, but in our cases, a certain amount of glucose or cane sugar, or a mixture of the two, caused hyperchlorhydria. It was, however, only transitory. I should like to know whether this would have any connection with the effect of lactose.

Dr. Roberts: In answer to the first question, I would say that one operation was done two years ago; and the other, a year ago, with partial relief. Concerning the effect of lactose on the stomach; it is somewhat worked out by this series. There is a group of cases in which you might expect that the secretion would be low, and it works out low; then this group of ulcer cases, apparently, where the secretion is obviously high.

THE HEALING OF GASTRIC AND DUODENAL ULCERS WITH BISMUTH.

Dr. Charles D. Aaron, Detroit: Bismuth has been used as a medicinal agent since it was introduced by Oidier, of Geneva, in 1786. It was Kussmaul who systematized its use. The anodyne effect of this drug is now universally conceded. Research work on this subject has furnished evidence that the protection afforded by bismuth subnitrate in gastric and duodenal ulcer is both physical and chemical. Experiments on dogs show that a few hours after administration, bismuth is finely distributed over the gastric wall. This acts as a protective layer, and many remain undistrubed for several days. The chemical effect of bismuth subnitrate is due to the liberation of nitric acid during its decomposition. The treatment with bismuth can never be regarded as a substitute for the rest cure in the treatment of ulcer.

THE GASTRO-INTESTINAL DISTURBANCES OBSERVED IN PERNICIOUS ANEMIA.

Dr. Julius Friedenwald, Baltimore: My own observations extend over a series of fifty-eight cases of pernicious anemia, in all of which gastro-intestinal symptoms were noted. From a study of these fifty-eight cases it is evident that a large proportion are attended with gastro-intestinal disturbances, as well as with an absence of gastric secretion; there is present an achylia gastrica in about 70% of cases, and even in the stage of apparent recovery, the gastric secretion does not return. In a smaller proportion of cases, 20%, there is a marked diminution of the secretion; and in a few instances, about 10%, it remains normal.

It is quite probable that the poison which produces the hemolysis is the same which is also responsible for the alteration in the gastric secretion.

A CONTRIBUTION TO THE ETIOLOGY OF PERNICIOUS ANEMIA.

Dr. James Taft Pilcher, Brooklyn: From my observations of 433 cases of abdominal complaints, in which the symptom of achlorhydria hemorrhagica gastrica was present, I wish to offer the following facts for consideration: 1. Achlorhydria is merely a symptom denoting chronic gastritis. 2. It is usually evoked through extragastric irritative fac-

tors, which are often capable of correction. 3. There are present in such stomachs great numbers of bacteria, among which streptococci are especially to be noted. 4. Practically all recorded cases of authenticated pernicious anemia present the symptom of achlorhydria and the presence of occult blood in the stomach extract. 5. Thirty-four instances of pernicious anemia were noted in patients presenting the symptom of achlorhydria hemorrhagica gastrica. 6. Lack of hydrochloric acid and the presence of occult blood were shown to exist for a year before any blood changes were noted, in a few cases. In some, paraesthesia was evidenced some time previous to blood impairment; while others had suffered for years from chronic gastro-intestinal complaints. 7. Eighty per cent. of cases of pernicious anemia have increased temperature sometime during the course of the disease. 8. Pure cultures of streptococci have been found in patients with pernicious anemia who were running a fever. 9. Bacterial hemolysins and other toxic substances are known to produce anemia resembling the pernicious type. 10. Efforts to control the bacterial growth in the gastro-intestinal tract have caused complete remissions in this disease in some instances. 11. The phenomena of the blood picture characteristic of pernicious anemia may be explained by the action of toxins, which impair the formation of antibodies until a bacteremia is produced. 12. The toxins being eliminated by the profuse flora in the gastro-intestinal tract.

PERNICIOUS ANEMIA.

Dr. G. W. McCaskey, Fort Wayne: The investigations of the last few years have placed pernicious anemia in a clearer light and indicated the direction in which we should look for the final solution. The classification of the different anemias is, as yet, unsatisfactory. The facts which form the groundwork of the clinical and pathological conception of pernicious anemia have reference to the blood picture, the data in regard to hematogenesis, and certain points in the clinical history and therapeutic results. There are several facts which appear to make the exclusive theory of toxic irritation of the bone marrow untenable. In the experimental anemia produced in animals by recin poisoning, the curious fact has been established that relatively large doses, producing a rapidly progressive anemia, are associated with a normoblastic bone marrow regeneration; while repeated small doses, acting more slowly, produce megaloblastic degeneration. Undoubtedly something besides the specific action of a toxin or group of toxins is necessary, and I believe that in embryological faults or tendencies at least a plausible explanation may be sought. The existence of such special tendencies is strictly in accord with well known biological laws, and squares with clinical observations.

DISCUSSION OF DRS. FRIEDENWALD'S PILCHER'S AND MC CASKEY'S PAPERS.

Dr. J. A. Lichty, Pittsburg: Everyone seems to agree that the underlying basis of anemia is some toxine; but we do not know what produces the toxine. Gastric disorders, nervous affections, etc., which we formerly thought were etiological factors, we now recognize as symptoms. It has not been my experience that all these cases have chronic gastritis. I should like to ask Dr. Pilcher whether he means that all his cases of anemia have had chronic gastritis. I have had in certain cases a gastric condition in which was found pernicious anemia; in the course of typhoid fever, for example. I might add that in some 70 or 80 cases, which I treated, all died but one; and that one probably will die. His was the only case in which there was no fault with the blood.

Dr. A. L. Benedict, Buffalo: We know that pernicious anemia should be associated with achlorhydria hemorrhagica gastrica, but it is not always so. In my opinion pernicious anemia is simply a bad case of anemia, in which it is hard to trace the exact cause.

Dr. Jacob Kaufman, New York City: Dr. McCaskey ably expressed it when he said that pernicious anemia is produced by toxine in the blood. First, where does the toxine come from? If we take the view of Dr. McCaskey, we shall readily understand that there is a certain group of cases in which the toxine originates in the gastro-intestinal canal. Chronic gastro-intestinal disorders are usually considered to produce the picture of pernicious anemia. We must not forget that the gastro-intestinal canal is not only secretory but is also excretory. It is certainly worth while to go into these questions, because the treatment depends on what you take as the cause in each specific case. I have seen excellent results in certain cases of pernicious anemia—in which gastro-intestinal disorders were not the cause of the disease—derived from blood cultures.

Dr. Willy Meyer, New York City: Last year I had two cases of pernicious anemia in which I did transfusion of blood. In both cases, the immediate result was excellent; but later one patient died. The other has remained improved.

Dr. Pilcher: I do not think that every case into which the alkaloid substance has been introduced will develop symptoms of pernicious anemia. Some people react to the same substances differently. It is explained by idosyncracy. In regard to Dr. Lichty's not finding any chronic gastritis in some of his cases of pernicious anemia, I do not know what pathological data he has on that subject; but certainly those examining hundreds of cases find that all have pathological evidence of marked atrophy and chronic gastritis of the stomach mucosa.

Dr. McCaskey: In regard to the rôle of the organisms, I think these organisms get into the gastro-intestinal tract incidentally or accidentally. They are important in the etiology of the disease. How large the bacteria's rôle in pernicious anemia is, is hard to determine. A negative finding is usually the result of the blood culture. The reason for achlorhydria is that there is little secretion—not enough to saturate the proteins. It is a condition of lowered quantity of secretion, and that may come from many causes.

CARCINOMA OF THE ESOPHAGUS FROM THE STANDPOINT OF INTRATHORACIC SURGERY.

Dr Willy Meyer, New York City: If progress is to be made in the radical surgical treatment of carcinoma of the esophagus, patients must come for operation earlier than at present, and their general health must be sufficiently preserved to warrant resection of the growth. The diagnosis is usually not difficult, even in the early stages. Diagnosis having been made, the cancer must be excised without regard to its location in the course of the esophagus. It usually covers too large a portion of the tube to

render possible the ideal operation. Often it is necessary to a resection within healthy tissue, later on. The feasibility of the latter procedure with good functional results has been proved. My experience has shown that the condition in which patients are received at present, does not permit of an operation of such magnitude as is required, at one sitting. A two-stage operation is required, the details of which are being worked out at present.

DISCUSSION.

Dr. Jesse S. Myer, St. Louis: There is no question in my mind but what the operation on carcinoma of the esophagus is a coming one. Everything depends on getting hold of the patient early. There is no way of making a diagnosis of carcinoma of the esophagus without the esophagoscope. It is surprising to me that so few enterologists have used the esophagoscope. It is so simple, and these patients suffer so intensely from their disturbances, that they are ready to permit you to use it. I urge the use of the esophagoscope on every one doing extra-intestinal work. If there is an element of doubt as to the exact condition, a section should be taken out and examined.

Dr. Walter B. Cannon, Boston: From a physiological point of view, I do not know of any reason why we should not cocainize above the vagus nerve, so that the innervation of the heart is not disturbed because of mechanical manipulation of the nerve. In a variety of animal observations made, if the laryngeal nerves are cut on both sides there will be a slight rapidity of the heart, but lower respiration. There will be a temporary loss of tone, in the absence of the vagus stimuli in the stomach and intestines.

Dr. Seymour Basch, New York City: One thing has impressed me, and that is the apparent simplicity of performing these operations if they are done early. We cannot, of course, tell people that they have a case of carcinoma, in these early cases. If the use of the esophagoscope is as easy as Dr. Meyer says, there will be no difficulty. In my experience, this operation is not such a simple matter; it is barbarous, and we all know that it is dangerous.

Dr. Meyer: Dr. Sharp, of Berlin, has devised a sound which has a rubber balloon, to be blown up with water, for use in early diagnosis. He claims that in no case could he do his diagnosing as early with the esophagoscope as with this sound. We use this for that purpose in the German Hospital. If both pneumogastrics are involved, we are not allowed to divide them both. If we could, in exceptional cases, divide both, and the patient would not die of paralysis of the heart or lungs, it would means a great step forward. All those working inadequately for certain ends should combine their forces; so that no matter what our specialties might be, one goal should be before us all.

Dr. Walter B. Cannon, Boston: I did not mean to have the inference made that it was perfectly feasible to cut both pneumogastrics without producing any harmful effects. I do not think there would be definite effects on the heart and lungs in cutting them, if the laryngeal were left. It is in relation to the alimentary canal that the trouble arises, there are disturbances of movement and secretion. By careful washing out of the stomach and the careful avoiding of epithelioma, a patient will live for a year with both pneumograstics cut; but it requires the greatest care.

Dr. Willy Meyer: In view of the extreme thinness of the esophagus, the nerves become intimately adherent to the tumor, and the greatest delicacy is necessary. In some cases it is impossible to operate. If there is support, the operation can be done.

CRYPTS AND COLUMNS OF MORGAGNI; THEIR RELATIONSHIP TO RECTAL DISEASES.

Dr. James P. Tuttle, New York City: The semilunar, or anal, valves, called also the pockets of crypts of margagni, dip down between the mucocutaneous lining of the anal canal, and extend more or less deeply into its caliber. The rectal columns attach their base at the upper margin between the valves, and furnish an exit for the veins of the rectum to an anastomose with those of the anus. To these two structures the crypts, and columns of morgagni, especially the latter, I wish to call your attention as influencing rectal diseases, such as pruritus ani, hemorrhoids, chronic spasmodic sphincter, obscure fissure, invisible ulceration of the anal canal and skin tabs. In operating for any of these conditions, one often fails to cure them unless these structures are properly attended to.

DISCUSSION.

Dr. Seymour Basch, New York City: There are three symptoms that are almost constant in these cases,—pain, bleeding and itching; but there are intervals, or cessations of one, two or all of these symptoms. There are many anal canals that we cannot thoroughly inspect without a general anesthesia. In probably half of my cases I can readily locate these points with the use of the speculum. The points to look at are in the right and left posterior quadrants and anterior mesentery. Occasionally they are found elsewhere. There may be only one of these that is pathological. The symptoms that these produce are often referable to the remote parts of the body. I attribute my failures to entirely relieve anal pruritis in some cases to the fact that I attempted to do it under local anesthesia. Pruritis is not the disease, but the symptom. One kind is where you see no external manifestations; the second is where there are distinct skin changes.

Dr. Willy Meyer, New York City: I should like to ask Dr. Tuttle whether he considers every crypt into which he can enter his probe, a pathologic crypt.

Dr. Tuttle: I do not consider every crypt a diseased crypt. It depends on how deep the probe will go in. If it goes no further than the subcutaneous tissues, I do not consider it diseased, but when a probe draws blood in one of the crypts, or excites itching or pain, then I have a pathological condition. There is no organ in the body too remote to be affected reflexly by one of these painful and concealed ulcers, and this applies to the reflex action of the crypts. In constipation or obstipation, stretching of the sphincter may relieve it for a while, but it will come back, if one of the crypts is diseased. Cutting gets at the bottom of the trouble, which stretching does not. The so-called watery urethral discharge is due, in a good many cases, to obscure fissure or inflammation in that front sinus. I have treated, within the last six months, seven of these cases, successfully.

The following officers were elected for the ensuing year: President, Joseph Kaufman, New York City; First Vice-President, J. C. Bloodgood, Baltimore, Md.; Second Vice-President, W. G. Morgan, Washington, D. C.; Secretary, F. W. White, Boston.

Book Reviews.

The History of the Prison Psychoses. By DRS. PAUL NITSCHE (*Dresden*) and KARL WILLIAMS, (Heidelberg). Authorized translation by Francis M. Barnes, Jr., M.D., and Bernard Glueck, M.D., Senior Assistant Physicians, etc., Government Hospital for the Insane, Washington, D. C. New York Journal Nervous and Mental Disease Publishing Co. pp. 84. 1912.

This, the latest addition to the admirable Nervous and Mental Monograph Series, is an elaborate historical review of the literature of the prison psychoses and their development in German literature since 1853. Heretofore our only guides in this field have been the incomplete and contradictory views of various writers, but here we have a critical digest of all the important German monographs on the subject and an authoritative summing up of the situation. This enables us for the first time to learn the accepted views to date on a number of vexed questions relating to mental disease in prisoners. There has been surprisingly little study of the subject in this country, and few alienists, whether connected with prisons or not, realize its importance either from a medico-legal or humanitarian point of view. In these pages they will find much to interest and instruct as regards the many ways in which prison life modifies the manifestation of mental disease and the difference in the frequency of its various forms in prison and outside life. Manic depressive insanity, for example, is seldom seen in prisons, while acute hallucinatory melancholia, a rare disease in freedom, is a characteristic psychosis of solitary confinement.

The principal contention among the various writers on the subject has been over the question whether or not there is a specific prison psychosis. Most observers believe that an actual prison psychosis does not exist as a clinical entity, but that imprisonment may modify in a characteristic manner the symptoms of all mental disturbances. Nevertheless, as far as the juvenile demential processes are concerned their peculiar symptomatology justifies the authors in considering them as special types well differentiated from those developing in free life. They are inclined to classify them as prison psychoses in the same sense that we use the collective term "traumatic neurosis" to describe the individual reactions and developments observed in free life as the result of accidents.

The translation is strictly literal and in places makes hard reading. There are also several instances of careless proof-reading, but in the main the text runs smoothly and does ample justice to this valuable contribution to the literature of psychiatry.

The Carrier Problem in Infectious Diseases. By J. C. G. LEDINGHAM, M.B., D.Sc., and J. A. ARKWRIGHT, M.D. London: Edward Arnold. New York: Longmans, Green and Company. 1912.

This volume is the seventh in the series of International Medical Monographs, intended to present the refined judicial opinions of experts in special subjects of investigation. It aims to state the present sum of knowledge with regard to the rôle played by human carriers in the infectious diseases. After a brief introduction on the theory of carriers, the carrier problem is exhaustively considered, in a series of chapters, in its specific relation to enteric fever, paratyphoid fever, diphtheria, epidemic cerebrospinal meningitis, dysentery, and cholera. Each chapter is followed by a comprehensive, authoritative, alphabetic bibliography of references. These six diseases were selected since they are the only ones in which sufficiently exact knowledge has been worked out to warrant statements as to the importance of carriers. They may serve as examples, on the basis of which similar facts may be determined for other infections. The book should prove of great value as a work of reference for bacteriologists, epidemiologists, and public health officials.

Flatulence and Shock. By F. G. CROOKSHANK, M.D. (Lond.). M.R.C.P. London: H. K. Lewis. 1912.

This thin volume, consisting of two papers read before medical societies in October, 1912, presents the author's original views on the subjects in question. In his preface he suggests a Freudian explanation of twentieth-century neurasthenia as a consequence of repression, and shock he considers a protective phenomenon. Every individual has his "shock-value," which does not differ essentially from his personal suggestibility, and which should be carefully estimated in advance of any surgical procedure. For neurotic flatulence, with eructations, he recommends *crème de menthe* as the best remedy. However much or little one may agree with the author's views, their piquant originality, point of regard, and apt phrasing are refreshingly stimulative. The book closes with an admirable alphabetic bibliography of sixty references to works bearing on the subject.

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PARANOIA IN THE COURTS.

AT a recent meeting of the Society of Medical Jurisprudence of New York, Mr. Frank Moss, Assistant District Attorney, made an interesting address on Paranoia in the Courts, devoting special attention to three recent cases involving various phases of the subject. He considered two main points, paranoia as a defense in criminal cases and the credibility of a paranoiac as a witness, involving, among other things, his ability to remember and to appreciate the nature of an oath. The three cases he cited were those of Kane, a negro murderer, where alleged paranoia was pleaded as a defense, and of Robin, and Harry Thaw, both of whom have lately testified as witnesses in certain cases in the courts. In 1911 Kane was convicted of murder in the first degree, but before he was placed on trial an examination as to his sanity was held, and he was declared sane and responsible. His crime was a peculiarly savage one. On the platform of an elevated railroad station he fatally stabbed a man with whom he had had an altercation on a train, and in endeavoring to escape, rushing down the steps and through the streets, he stabbed no less than eight other persons in the crowd assembled (two of whom died in consequence) before he was arrested. Nor was this his first crime. In 1900 he was convicted of manslaughter in the first degree for fatally stabbing a man who, he claimed, had jostled him on the street, and he was sentenced to a term of years in Sing Sing prison. At his trial in 1911, as mentioned, the defence was paranoia. It was claimed that he was insane when he did the first stabbing, and that the records showed that while serving his sentence at Sing Sing he had been transferred to the State Hospital for Insane Criminals at Dannemora. On the other hand, the prosecution contended that if the defendant had had paranoia, a progressive and incurable affection, in 1900, he would have shown decided evidence of this during the years he spent in Sing Sing. As a matter of fact, he appeared perfectly rational and was regarded as a model prisoner until shortly before the expiration of his sentence in 1909, when he seemed to develop certain delusions, on account of which he was sent to Dannemora. It was declared therefore, that these delusions were either simulated or else manifestations of a prison psychosis, and the jury having brought in a verdict of guilty, the man was sentenced to death. Later the Court of Appeals confirmed the verdict, but expressed the opinion that, in view of all the circumstances, this was a case in which executive clemency might be advisable, and, accordingly, the Governor, acting in accordance with the suggestion, commuted the sentence to life imprisonment.

Justice Seabury, in charging a Grand Jury which had to consider whether or not to bring an indictment in a case where the testimony of a certain man adjudged insane (a paranoiac) would be of value, recently stated that if such testimony bore no relation to the special features of his insanity, and it was corroborated by other testimony, they were justified in indicting. The case of Robin, who was convicted of grand larceny in bank wrecking, was somewhat different, for while he had been pronounced insane by a number of expert alienists, the jury decided that he was not insane. Two years ago, when the alienists made their examinations, he appeared to have positive delusions, which could hardly have been simulated, as he himself denied that he was insane. These delusions, Mr. Moss thinks, may have been due to the peculiar circumstances of his position at this time. Thus he was under the most severe mental strain, being overwhelmed by vast business reverses and under a number of indictments. In addition, he was suffering great physical pain from renal calculi, for which he was taking large quantities of belladonna, and was altogether in a toxic condition. Later, all the paranoia-like symptoms seem to

have entirely disappeared. His intellect, as well as his memory, were remarkably clear, so that he was able to go successfully into many abstruse calculations, and his testimony proved of the greatest value in procuring the indictment and conviction of several dishonest bank officials. In the course of his remarks Mr. Moss said that in his opinion it would be an advantageous plan to have a good all-round general practitioner associated with the expert alienist in investigations into the sanity of persons accused of crime. The mind of the alienist, it seemed to him, runs too much in grooves, and he is apt to attach more importance to certain phases of a case than they really deserve.

The discussion on the address was participated in by a number of physicians and members of the bar, all of whom seemed to agree that there is too much confusion and uncertainty in regard to the subject of insanity, and that more or less change in its legal aspects is needed. Dr. Edward D. Fisher, professor of mental and nervous diseases in the University and Bellevue Hospital Medical College, said that the old name for paranoia, monomania, was expressive, because the paranoiac has certain fixed ideas which, no matter how he may be reasoned with, cannot be eradicated from his mind. If he has grown suspicious that a certain individual is injuring him, this fixed idea may go on increasing in intensity until he is ready to kill him; and, therefore, such a patient should be carefully watched. Paranoia is always an inherited or a congenital affection, and much study is often required to get at its exact history. The conscientious expert is never willing to accept a case until, after a careful examination of the patient, he has convinced himself that the side of the case he is asked to take is the correct one. Failing to be so convinced, he will refuse to appear. It is, of course, true that insanity experts frequently differ; but the same may be said to be the case among experts in all departments of knowledge. Dr. Fisher said that although there is now before the Legislature a bill designed to regulate expert testimony which has been prepared through the coöperative work of representatives of the State Medical Society and the State Bar Association, he had little hope that any great improvement could be effected in the matter.

In connection with the subject of this meeting it may be stated that some months ago the Society of Medical Jurisprudence appointed a committee to consider the desirability of changing the legal measure of responsibility of those mentally diseased or defective so as to accord more fully with the views of those best versed on the causes of mental defects. The object of the society was to take the initiative in an effort to ascertain whether the present knowledge on the subject, wise treatment of mental disorders, and public policy do or do not demand a change in the present legal concepts and the present legal attitude toward the subject. In pursuance of this, the coöperation of other societies has been invited and circulars have been sent to organizations and individuals, containing a summary of the substantive law in respect to those mentally deficient, as it exists in New York and other States, and asking for suggestions, observations and criticisms in relation to such law. The following is given as an example of the problem involved in the relation of mental defects to the criminal law: "The New York penal law (Section 1120) provides that 'A person is not excused from criminal liability as an idiot, imbecile, lunatic or insane person, except upon proof that, at the time of committing the alleged criminal act, the accused was laboring under such a defect of reason as either (1) not to know the nature and quality of the act he was doing, or (2) not to know the act was wrong.' Has the time now come when the legal definition of responsibility for crime is, in the light of recent progress in the investigation of mental phenomena and mental disorders, doing injustice? Measured by this rule insanity as a defense is not inconsistent with self-defense, or with deliberation, and there are within the rule no degrees of insanity. And with respect to this rule, if the accused has the requisite mental capacity he is guilty; if he lacks it he is not guilty. It is urged as an excuse for this apparently harsh rule, which holds all responsible who have the rational power of discriminating between right and wrong, that emotional insanity and irresistible impulse would afford a dangerous facility for escape from just punishment and salutary separation from society to the depraved and vicious, because the margin between disease of the brain, causing such propensity to unlawful acts, and mere depravity, moral turpitude or criminality, is slender." In the discussion at this meeting Dr. Frank W. Robertson, who is a member of the committee on the law of insanity, asserted that numbers of insane patients were entirely able to distinguish between right and

wrong, but, while they knew an act to be wrong, could not help doing it. The impulse might be so strong that they were unable to resist it. Therefore, he thought this part of the law should be changed, though, on account of the different views among experts, a satisfactory definition of insanity could scarcely be expected.

THE DEATH RATE AMONG INFANTS.

STRICTER requirements for the milk-supply, increased vigilance of local health boards, and the establishment of infant welfare stations where mothers are taught the proper care and management of their babies, have all combined to produce a steadily diminishing infant mortality. This decrease in the death-rate is, however, still far from what it should be. It is gratifying to note that all over the country the authorities are becoming more and more alive to the fact that a large percentage of the deaths among infants is strictly preventable. In New York, the Public Health Commission appointed by Governor Sulzer has advised that "each city with a population in excess of 10,000 and having an industrial population should have one infant welfare station for each 2000 inhabitants." In addition to the information given mothers at these stations it is planned to continue on a larger scale than ever the distribution of leaflets with simple directions as to the care and feeding of infants. Thus the problem of educating the mothers has been attacked in a systematic way in the State of New York.

The milk supply seems to present much greater difficulty. In our large cities this is met partly by charitable means, which is at best a poor solution of any problem. Pure and wholesome milk should be within the reach of the poorest as well as the richest without a resort to what practically amounts to the taking of alms. That this is possible seems to be proven by the investigation and experiments of the Monroe County Medical Society's Milk Commission. The Secretary of this Commission, Dr. John B. Williams, told the result of their investigation and experiment at the last International Congress of Hygiene and Demography. They came to the conclusion that wasteful methods on the farms, and the comptetition betweeen "small dealers, caused unnecessary labor in the handling of the milk, lowered the quality and raised the price. Their investigations were conducted in the city of Rochester and among the farms supplying the city. They based their conclusions on a study of 40 farms, 173 vendors and 5400 consumers. Being convinced that milk conforming to the standards was unnecessarily high in price, they conducted an experiment in which it was found entirely possible to supply milk to the consumer at one-fourth the usual price without having to invoke the aid of philanthropy. It is apparently impossible, even with the most stringent laws, to have a perfect milk supply when there are so many dealers handling it, and the farmers find it so hard to make a reasonable profit. There seems to be but one adequate solution and that is the operation and control of the whole milk business by the State or municipality. In the matter of water the precedent has long been set. The provision of pure milk at a price within the reach of all is as important and as much a public duty as the provision of pure water.

The third great menace to infant life is the house fly. If this filth carrier swarms in large numbers, all the efforts to provide good milk and to educate the mothers in its preparation will be largely futile. Owing to the gradual disappearance of the horse from the cities and the consequent absence of breeding places, the fly is not such a menace to the urban population as to the rural. Statistics for the State of New York show that the prevalence of diarrheas among infants in the country is greatest during the summer and fall and that infant mortality is but slightly lower than in the city. Undoubtedly the fly is in part responsible for this. In both city and country the coming months of July, August and September bring the heaviest mortality among infants, therefore our efforts should be redoubled with the three most effective weapons at our hand; first, the provision of a pure milk supply; second, instruction of the mothers in both town and country; and third, the elimination of the fly. That the work of the past has not been in vain may readily be seen by the report of the New York State Department of Health in its Monthly Bulletin for March, 1913. During the year 1912 the infant mortality for the whole State of New York was 108.9 per 1000 born living, while in 1904 it was 151. The result of the efforts put forth by the State of New York should encourage all State Boards of Health to increasing activity and vigilance during the coming year.

THE ABUSE OF HABIT-FORMING DRUGS.

THAT the lack of uniform laws in all States regarding the sale and use of poisonous drugs is largely responsible for the enormous increase in their consumption is the conclusion that must be drawn from Public Health Bulletin No. 56.[1] The mortality statistics of the Census Bureau report that for the last ten years the annual average of deaths indirectly due to poisons other than alcohol has reached the appalling figure of 5000. In 1906, according to Thomas F. Darlington, when an ordinance of the New York City Board of Health was enforced, the number of suicides from the use of carbolic acid in that city was reduced from 343 to 36.

The law requiring a poison label on arsenic, corrosive sublimate, prussic acid, or any other substance or liquid usually denominated poisonous, was the earliest of the laws designed to prevent accidental poisoning. This law was enacted late in the last century by the State of New York, and for over twenty years was the only attempt made to safeguard the public by legislation. The toxicity of morphine seems not to have been recognized until 1860 by Pennsylvania; and the habit-forming dangers of opium and its alkaloids were not legally restrained until twenty-five years later, when Ohio passed its anti-opium-smoking law. It is only in the last sixteen years that the bulk of our anti-narcotic legislation has been enacted, and the rapid spread of the use of narcotic drugs shows the impracticability of these laws. This was commented upon by the President in his message to the third session of the Sixty-third Congress, in which he stated that the ever increasing misuse of opium and other habit-forming drugs in the United States "may be attributed to several causes, but in a larger sense is due to the lack of control by the Federal Government of the importation, manufacture and interstate traffic in them."

In respect to the abuse of morphine and cocaine, we make a bad showing as compared to European States which have a more centralized system of government than ours in matters which affect the health of the whole nation. Thus in Germany, with a population of approximately 60,000,000 inhabitants, they consume only 17,000 pounds of opium yearly, as contrasted with our annual consumption of 400,000 pounds. It has been estimated by the best medical authorities that 50,000 pounds of opium annually should suffice for the legitimate needs of the American people. Consequently, it appears that we use at least eight times as much as we should. When we reflect upon the fact that fully 75% of our annual opium importation is manufactured into morphine, and that probably 80% of such morphine is used by victims of the habit, it becomes apparent that the situation needs the careful attention of our legislators. Not only is this true in regard to morphine, but also for other drugs with habit-forming tendencies. According to the authors of this Public Health Bulletin, who appear to have made an exhaustive study of the laws and regulations governing the manufacture and sale of all habit-forming drugs in every State in the Union, there is an increasing abuse of such drugs as chloral and allied hypnotics. But probably the worst of all is cocaine, which is taken illegitimately by the people at the rate of 150,000 ounces a year.

Making due allowance for the increasing tendency on the part of public health officials of all ranks from municipal to national, to present their arguments in such graphic figures that the suspicion of exaggeration must always be with us, we nevertheless believe that in this particular instance the dangers which beset us from drug addiction are not overstated. The remedy would seem to lie in Federal enactments which would be equally applicable to all States.

[1] Martin I. Wilbert and Murray Galt Motter, Digest of Laws and Regulations in Force in the United States Relating to the Possession, Use, Sale, and Manufacture of Poisons and Habit-Forming Drugs. Public Health Bulletin No. 56. November, 1912.

MEDICAL NOTES.

BUBONIC PLAGUE IN MANILA.—Report from Washington, D. C., on April 26 states that there have been five human deaths from bubonic plague thus far this year in Manila, P. I. The rat is the important factor in its transmission, and the Manila Board of Health has employed fifty additional rat-catchers in the effort to rid the city of these dangerous pests.

A LIVING CENTENARIAN.—Nathan Adkins, of Dorothy, W. Va., is locally reputed to have been born in 1805. His health is said to be still excellent.

SALE OF DR. FRIEDMANN'S VACCINE.—The recent sale of Dr. Friedmann's vaccine, as reported in the daily press, removes it from the field of legitimate medicine and places it in the category of proprietary remedies whose composition is

kept secret. Dr. Friedmann's methods of self-exploitation may be contrasted with the manner in which von Behring's beneficent discovery of diphtheria antitoxin was introduced to the world. The most charitable interpretation that can be put upon his conduct is that he has allowed himself to become the tool of American commercial promoters; but it is none the less painfully to be regretted that a member of our profession should forsake its dignity for the methods of charlatanism.

London Death-Rates for 1912.—Statistics recently published show that the total death-rate of London for the year 1912 was only 14.3 per 1000 inhabitants living. Among the several districts and boroughs the highest annual rate was 19.4 in Finsbury, a crowded central slum, and the lowest was 10.8 in Wandsworth and Lewisham, two populous southern suburbs.

A Prolific Father.—Reminiscences of Augustus the Strong are aroused by the report on April 28 from Walnut, Ark., stating that Thomas Ellison, of Newton County in that State, now 93 years old, who has been thrice married, has 50 children, ranging from 65 to 11 years of age, 125 grandchildren, 60 great-grandchildren, and 27 great-great-grandchildren. He himself was born in Clinton County, Ohio.

Feeble-Mindedness in Pennsylvania.—On June 14, 1911, there was appointed in Pennsylvania a commission to investigate "the segregation, care, and treatment of feeble-minded and epileptic persons" in that commonwealth. The report of this commission, recently published at the conclusion of its labors, is an interesting document, presenting many facts of general importance to other communities than those of Pennsylvania.

After careful investigation it was ascertained that 7326 feeble-minded, idiot, and epileptic persons were receiving care in institutions in the State; and conservatively estimated that 18,000 more such persons were at large and receiving no proper care. The report next summarizes the provision made for such persons in other States of the Union. After defining the grades of feeble-mindedness, and reviewing the provisions made for the care of aments in Pennsylvania, the report proceeds to specific recommendations for their improvement. Sterilization is approved in theory, but considered inexpedient. Segregation, compulsory in the case of women of child-bearing age, is deemed the essential element in dealing with the problem of the feeble-minded. Suggested legislation, covering the points in question, is appended.

Boston and New England.

The Cutter Lectures.—The Cutter Lectures on Preventive Medicine and Hygiene this year will be given by Dr. Mark W. Richardson, Secretary of the State Board of Health of Massachusetts, on "Health Administration." The subject will be considered from the standpoint of conditions obtaining in the Nation, State, City and Town. Especial attention will be devoted to a discussion of the opportunities for a life career in public health work.

These lectures will be given next week, on Monday, May 12, and Wednesday, May 14, at the Harvard Medical School, Amphitheatre Building E, at 3 p. m.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the Medical School, the medical profession, the press, and others interested, are cordially invited to attend.

Reporting of Ophthalmia Neonatorum.—The Boston Board of Health again desires to call to the attention of the medical profession and midwives, the importance and necessity of reporting promptly all cases of ophthalmia that they may be called upon to visit. Within the past few weeks four physicians and one midwife have been summoned into court and found guilty. So many cases of neglected eyes have been found where physicians have failed to report as the law directs, that this Board intends to prosecute all cases where neglect on the part of the physician is found.

An Evening Ophthalmologic Clinic.—An evening ophthalmologic clinic was opened at the Boston Dispensary on April 29, and will be continued every Tuesday evening thereafter.

"The object of this clinic is to meet the demands of a large number of persons suffering from ocular troubles who find it too difficult to leave their work in the daytime and attend the regular dispensaries. It is also intended for those persons who do not wish to be the recip-

ients of charity at the free clinics and yet are unable to afford the regular oculist's fee.

"It is hoped to make this clinic, which was established in the interests of the public, self-supporting, and except under special arrangements for those who are unable to pay for their services, a charge of $1 will be made for the first visit and of 50 cents for each succeeding visit."

The clinic is under the charge of Dr. Edward Hartshorn.

A HOSPITAL BEQUEST.—The will of the late Edith Hill Crane, of Weston, Mass., which was filed on May 1 for allowance in the Norfolk County Registry of Probate, at Dedham, Mass., contains a provision whereby the Massachusetts General Hospital receives $100 annually for the maintenance of a free bed.

MILTON ACADEMY INFIRMARY.—Plans have recently been drawn and accepted for a new infirmary at Milton (Mass.) Academy.

"Construction will be of brick, with wooden floors and walls. The first floor will contain one large ward and one small ward, a diet kitchen, a nurse's room and bath, and locker room. Part of the second floor has been so arranged that it may be shut off from the rest of the building and used as a contagious ward. When not in use for this purpose it will be adapted to general hospital purposes. On this floor there is one large ward and three smaller wards and the stairs run direct from the floor to the outside of the building. Each floor has two sun rooms. In the basement there is a large diet kitchen which may be used in emergencies. In all there will be fourteen beds."

STATUS OF MILK LEGISLATION IN MASSACHUSETTS.—Since the publication of our editorial in the issue of the JOURNAL for April 24, (Vol. clxviii, p. 626) on "The Milk Problem in Massachusetts," Senate Bill No. 44 has been defeated in the Legislature, and the substitution for it of the Ellis bill has been refused by both houses of the General Court. Attention is now directed to the Bowditch bill, another substitute measure, apparently not desirable.

"The bill carries with it an appropriation of $10,000, and the proposition is to use the money as prizes for the smallest number of bacteria in milk—$150 for first prize, $100 for second, $70 for third, $50 for fourth, and ten prizes of $20 each. In determining the bacteria ten samples of milk taken in two months shall be submitted."

This bill is favored by the Massachusetts State Board of Agriculture, by the Massachusetts Dairymen's Association, and by the State Grange.

MOUNT SINAI HOSPITAL.—The recently published eleventh annual report of the Mount Sinai Hospital, Boston, records the work of that institution for the calendar year 1912. During this period the total number of consultations and treatments was 21,607, of which 4493 were in the surgical department. There were 301 deliveries in the obstetric department. In June, 1912, the new social service department was opened. The massage and dental clinics were closed during the summer. The need is reiterated for a new hospital building, both for the out-patient departments and to provide ward accommodation for patients too sick for ambulatory treatment.

REPORT OF BROCKTON BOARD OF HEALTH.—The recently published thirty-first annual report of the department of public health of the city of Brockton, Mass., chronicles the activities of that body for the calendar year 1912. The city death-rate for this year was 11.64 per 1000, the average death-rate for the past ten years 11.79. In 1912 only three deaths each were reported from scarlet fever and typhoid, 44 from tuberculosis, and 62 from pneumonia. There were 156 deaths of infants under one year of age. A total of 563 laboratory examinations was made by the city bacteriologist and inspector of milk.

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Board of Health of Boston, for the week ending April 29, 1913: Diphtheria, 36, including 1 non-resident; scarlatina, 40, including 2 non-residents; typhoid fever, 6, including 1 non-resident; measles, 154; tuberculosis 79, including 4 non-residents. The death-rate of the reported deaths for the week was 17.09.

NEW YORK.

HALL OF PUBLIC HEALTH.—A "hall of public health" was opened on April 16 at the American Museum of Natural History, where a largely attended meeting was held in the interests of the campaign for civic cleanliness instituted by the Health Department. Addresses were made by Prof. H. F. Osborn, president of the Museum, Commissioner Lederle, and others, and a number of motion pictures were shown. Among the features of the display in the hall of health are a gigantic model of the house-fly and other exhibits illustrating the relation of insects to the spreading of disease. The special appropriation of

$37,000 for the Spring cleaning asked for by the Health Department has now been voted by the Board of Aldermen.

INTERNATIONAL CONGRESS OF SCHOOL HYGIENE.—At the Fourth International Congress of School Hygiene, which is to be held in Buffalo August 25 to 30, ex-President Eliot of Harvard is to preside. The general secretary is Dr. T. A. Story, professor of hygiene in the College of the City of New York, and among the vice-presidents are Prof. W. H. Welch of Johns Hopkins University and Dr. H. P. Walcott of the Massachusetts Board of Health.

PHYSICAL EXAMINATION BY WOMEN PHYSICIANS.—Governor Sulzer has signed the Tudor bill, recently passed by the Legislature, which provides that where women are required to undergo physical examinations in obtaining employment such examinations shall be made by women physicians.

BEQUEST FOR CANCER RESEARCH.—The will of the late Henry Rutherford, of Grand Isle, Vt., who died in New York City, was filed there for probate on April 28. It contains a bequest of $200,000 to the Rockefeller Institute for Medical Research, the income of the fund to be used for cancer investigation.

A PHYSICAL STANDARD FOR CHILDREN.—It was announced on April 28 that the New York Milk Committee is to attempt the determination of a standard norm of physical development among American children.

"In carrying out tests and measurements, 100,000 children will be examined throughout the country. Results will be obtained through a series of competitive examinations of normally healthy children in county, city and State contests. On score cards furnished by the committee will be entered the weight, height, physical measurements, condition, and mental development, following examinations by physicians. Within one year, it is hoped, the standard of America's normally healthy child will be established beyond dispute."

MEETING TO COMMEMORATE DR. BILLINGS.—A meeting in commemoration of the life and services of Dr. John R. Billings, attended by many prominent persons, was held at the New York Public Library on April 25. The president of the Library, J. L. Cadwalader, presided, and among those who made addresses were Dr. S. Weir Mitchell, Sir William Osler, and Prof. William M. Welch of Johns Hopkins University.

APPOINTMENT OF DR. SCHLAPP.—Dr. M. G. Schlapp of Cornell University Medical College has been appointed by Mayor Gaynor one of the delegates to the National Conference on Charities and Corrections, to be held at Seattle in July next.

SEWAGE CONTAMINATION OF WATER.—Drs. G. J. Fowler and J. D. Watson, the English sanitary experts who were summoned to make an investigation of the problem, have submitted to the Metropolitan Sewerage Commission a report on the contamination by sewage of the waters of New York Harbor and of the Harlem and East Rivers and the lower Hudson. In this they urge the necessity for immediate action to remedy existing conditions and present comprehensive plans for the work, including an indorsement of the recent recommendations of the commission calling for the building of a sewage tunnel passing under Brooklyn to Staten Island and the construction of an island sewage plant three miles off shore.

HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.—The sum of $105,000, or $10,000 more than in any previous year, was distributed on April 21, by the Hospital Saturday and Sunday Association, to the 46 institutions represented in the Association, in accordance with the amount of free work done by each. As usual, the Mt. Sinai Hospital received the largest award, which this year amounted to $9,129, and St. Luke's came next, with $6,148. The third on the list, getting $5,973, was the New York Hospital, and it is noteworthy that this is the first time that this venerable institution, the richest of its kind in the city, has asked to be the recipient of a share of the fund.

NATIONAL ANTI-CANCER ASSOCIATION.—In furtherance of the views expressed in the recommendations adopted by the American Gynecological Society and the Congress of American Surgeons, a meeting was called on April 22 by Dr. Clement Cleveland of the former society to organize a National Anti-Cancer Association, for the purpose of inaugurating and carrying on a campaign of popular education on the prevention and suppression of cancer. This is de-

signed principally for the benefit of women, and particularly as regards the early recognition of uterine and mammary cancer. The meeting was attended by a number of well-known physicians and surgeons, and of prominent women interested in philanthropic work, including Mrs. Russell Sage and Mrs. F. W. Vanderbilt, and the committee on organization was instructed to ask the coöperation of the Congress of American Physicians and Surgeons in Washington.

RECENT HOSPITAL BEQUESTS.—By the will of the late Mrs. William S. Eaton of New York the Presbyterian Hospital is to receive $15,000, the New York Foundling Hospital, $2,500, and St. Vincent's Hospital, $30,000. The last-named bequest, however, is not effective until the death of her husband.

Current Literature.

MEDICAL RECORD.

APRIL 19, 1913.

1. JACOBY, G. W. *The Montessori Method from a Physician's Viewpoint.*
2. DOWNES, W. A. *Primary Splenomegaly of the Gauchier Type; Report of a Successful Splenectomy.*
3. *BARIGHT, H. E. *A Method of Classification, Diagnosis and Therapy of Kidney Disorders, Based on Functional Testing.*
4. PFENDER, A. *Barlow's Disease in an Infant Fed on Pasteurized Cow's Milk.*
5. GILLESPIE, E. *Some of the Common Forms of Insanity.*
6. MULOT, O. L. *A New Treatment for Acute Gonorrhea.*
7. ORR, T. G. *A Case of Acute Septicopyemia.*

3. Baright presents a new method of classification, diagnosis and treatment of kidney disorders, based on functional testing. He divides nephritis into three forms—vascular, tubular and uremic. Albumin and casts may be present in every type of renal disorder and therefore do not help to distinguish between types. In place of these there is a series of signs possessing true diagnostic meaning and value. Circulatory troubles are peculiar to vascular nephritis, anasarca and diminished capacity for salt excretion are peculiar to the tubular type, repugnance for meat, albuminuric retinitis and increase of non-protein nitrogen in the blood are peculiar to the uremic type. Aside from these clinical signs, there are the functional tests, each of which has its definite diagnostic significance. The phenolsulphonephthalein test is valuable for prognosis rather than for diagnosis, determining the extent or severity of a renal lesion but not its type. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

APRIL 19, 1913.

1. BAUDLER, S. W. *Vaginal Surgery.*
2. BROWNING, W. *American Assassins.*
3. ALLFORT, F. *The Needs of the Eye, Ear, Nose and Throat Surgeon in General Hospitals.*
4. FRANK, R. T. *Contraindications to Curetting.*
5. *CORNWALL, E. E. *Gastric Ulcer.*
6. RAYEVSKY, C. *The Hematological Equilibrium in Pulmonary Tuberculosis.*
7. EARP, S. E. *Chronic Interstitial Nephritis.*
8. KERR, L. *Convalescing Children.*
9. DANZIGER, E. *The Nose and Throat.*
10. *WILSON, S. M. *Whooping Cough.*
11. ROHDENBURG, G. L. *The Blood Catalase in Malignant Tumors.*
12. MACY, M. S. *Instruction in Sex Hygiene.*
13. DOYLE, S. B. *Beriberi.*

5. Cornwall writes an interesting paper on the medical treatment of gastric ulcer. Practically every case, he says, is entitled to at least one chance to recover without operation. Rectal feeding in the beginning is essential in all severe cases and desirable in others. The ulcer is least irritated by a diet of modified milk and milk products, cereals and bland fruits. Spices, condiments, acids and sugar are especially to be avoided. Speedy emptying of the stomach is facilitated if the patient lies on his right side as much as possible during gastric digestion. Olive oil is soothing to the ulcerated stomach, is good food, and is laxative. Drugs are of very little use in the treatment of gastric ulcer.

10. Wilson reports good results with pertussin in whooping-cough. This is a vaccine made from the organism isolated by Bordet. Twenty to forty million bacteria were given (subcutaneously) at a dose. The writer observed that the paroxysms were rapidly controlled and that from that time on the patients were not infective to others. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

APRIL 26, 1913.

1. *GATCH, W. D., GANN, D., AND MANN, F. C. *The Danger and Prevention of Severe Cardiac Strain During Anesthesia.*
2. EBRIGHT, G. E. *A Case of Congenital Heart Disease.*
3. MORRISON, E. E. *Report of a Case of Brain Tumor.*
4. BUFORD, C. G. *Large Urethral Caruncle in a Girl of Nine Years. A Preliminary Note, with a Summary of the Subject.*
5. BASSLER, A. *Early Diagnosis of Cancer of the Esophagus. A New Technic of X-ray Examination.*
6. *POPE, S. *Simplified Transfusion.*
7. ZAPFFE, F. C. *Two New Circular Bone-Saws.*
8. JACKSON, J. N. *Rectrocecal Appendicitis.*
9. *BLACK, J. H. *Prophylactic Vaccination Against Epidemic Meningitis.*
10. *Medical Ethics. By a Physician's Wife.*
11. *HERTZLER, A. E. *Causes of the Migration of the Omentum.*
12. *LEARY, T. J. *Surgical Method of Clearing Up Chronic Typhoid Carriers. Report of Two Cases of Removal of the Gall-Bladder and the Entire Cystic Duct.*
13. DIXON, S. G. *"The Branched Form of the Tubercle Bacillus" as a Specific Factor in the Treatment of Human Tuberculosis. A Preliminary Note.*
14. HITZ, H. B. *A Needle-Holder for Submucous Resection of the Septum.*
15. EDDY, N. B. *Recovery in Brain Syphilis After the Use of Salvarsan.*
16. STONE, W. J. *Complete Situs Transversus.*
17. GROVER, A. L. *Fatal Peritonitis Due to Infection with Bacillus Coli.*
18. CRIGLER, L. W. *Burn of Eyeball Due to Caustic Contents of Golf-Ball.*

1. Gatch and his associates conclude, from experimental and clinical observation, that the Trendelenburg position is harmless for patients with normal hearts, provided their respiration is free and unobstructed. In a case of partial or complete failure or obstruction of respiration, the patient should at once be placed in the horizontal or semi-recumbent posture. The Trendelenburg position should be used only with the utmost caution in cases of cardiac disease. To prevent too sudden inflow and outflow of blood to and from the heart, the patient should be placed very gradually in and out of this position. Alcoholic patients should be given morphia and alcohol before anesthesia and should be anesthetized without cyanosis.

6. Pope does transfusion with two small glass tubes inserted into the donor's artery and recipient's vein and connected so as to give plenty of room for manipulation by a paraffine coated rubber tube or bit of catheter.

9. Black believes that prophylactic vaccination in epidemic meningitis produces in most cases a high degree of immunity, which is demonstrable at the end of one year. The procedure is of the greatest value in the control of this disease.

11. Hertzler believes that there are no inherent properties which cause the omentum to migrate; corn-pith migrates in the same way under same conditions. Fibrin formation is the requisite condition for migration.

12. Leary advocates the entire removal of the gall bladder and cystic duct as the treatment for clearing up chronic typhoid carriers. [E. H. R.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

APRIL, 1913.

1. *EASTMAN, J. R. *The Fetal Peritoneal Folds of Jonnesco, Treves, and Reid, and Their Probable Relationship to Jackson's Membrane and Lane's Kink.*
2. *CONNELL, F. G. *Etiology of Lane's Kink, Jackson's Membrane, and Cecum Mobile.*
3. SCHRAGER, V. L. *Bilocular Hernia.*
4. CARY, E. *Chorio-Epithelioma: Recurrence After Three Years; Invasion of the Spinal Canal; Villi in Secondary Growth.*
5. DAY, E. W. *Indications for and Results of Operative Treatment of Otitic Meningitis.*
6. WHITING, F. *Discussion of Dr. Day's Paper.*
7. JUDD, E. S. *Prostatectomy.*
8. REMSEN, C. M. *Acute Perforative Cholecystitis Complicated by General Peritonitis.*
9. *LEONARD, V. N. *Post-Operative Results of Amputation of the Cervix.*
10. MILLER, A. M. *Primary Traumatic Dorsal Complete Radiocarpal Dislocation.*
11. *SMITH, J. T. *The Prognostic Value of the Leucocyte Count in Pelvic Suppurative Conditions.*
12. MACCARTY, W. C. *Goiter and Its Relation to Its Structural and Physiological Units.*
13. *WILLIAMS, P. F., AND PEARCE, R. M. *Abderhalden's Biological Test for Pregnancy.*
14. *MCCORD, C. P. *The Employment of Protective Enzymes of the Blood as a Means of Extracorporeal Diagnosis.*
15. ZWALENBURG, C. V. *Report of the Radical Operative Cure of a Double Obturator Hernia.*
16. ROCKEY, A. E. *Prostatectomy by a Composite Method.*
17. MCGLANNAN, A. *The Open Treatment of Fracture of the Femur.*
18. JACKSON, J. N. *Amputation Flaps.*

1. Eastman's beautifully illustrated article shows clearly the relationship between the fetal peritoneal folds of Jonnesco, Treves and Reid to the adult peritoneal conditions known as Jackson's membrane and Lane's kink. Eastman believes these latter conditions not to be inflammatory in nature, at least not of recent adult occurrence, but rather of persistence of fetal conditions.

2. Connell, discussing the same conditions, ascribes them to anomalous development, which may be either excessive rotation, delayed migration or anomalous fixation of fetal conditions. Cecum mobile is due to an absence of fixation.

9. Leonard, analyzing 128 cases of amputation of the cervix, states that hemorrhage is not uncommon (5 per cent.) and is due to sepsis rather than faulty suture. Ninety per cent. of patients show improvement in general health. Four-fifths of cases remain sterile after amputation. A pregnancy after amputation of the cervix has not more than an even chance of progressing to full time. Serious dystocia generally results, due to the cicatricial condition of the cervix.

11. Smith states that the leucocyte count in pelvic suppurative conditions is extremely variable, but is decidedly of more prognostic value than pre-operative temperatures. With a count of over 14,000 some trouble arose during convalescence in a majority of 100 cases. With a count of less than 14,000 trouble seldom developed in convalescence in 100 cases.

13. Williams and Pearce do not feel that Abderhalden's test for pregnancy can be accepted as an accurate clinical method until it has been more thoroughly investigated and the possible sources of error corrected.

14. McCord, however, using his own modification of Abderhalden's method believes the sero-diagnosis of pregnancy to be both reliable and practical and of great value to the obstetrician and gynecologist. [E. H. R.]

THE LANCET.

APRIL 5, 1913.

1. *BELL, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture II.*
2. *HALL, F. DE H. *The Lumleian Lectures on Intrathoracic Aneurysm.*
3. *BOYD, S. *Non-Parasitic Cysts of the Liver.*
4. *LAPAGE, C. P., AND MAIR, W. *Notes on the Pathology of Tuberculosis in Infancy and Childhood.*
5. GALBRAITH, S. N. *Acute Tuberculous Pneumonia; Recovery.*
6. BANKART, A. S. B. *The Technic of Excision of Cervical Ribs.*
7. PATTERSON, N. *Case of Epithelioma of the Auricle and Cervical Glands; Removal of Auricle and Glands.*

1. Cf. *British Medical Journal*, April 3, 1913.

2. In the third Lumleian Lecture, after briefly dwelling on prognosis in thoracic aneurysm and its relation to life insurance, Hall considers treatment. He does not think that Tufnell's starvation treatment has accomplished much; iodine is of great benefit in cases in which syphilis is an etiological factor; injections of gelatine have been of symptomatic value in a few cases; calcium salts have accomplished nothing. He discusses the question of tracheotomy in cases of urgent dyspnea, advising it only in extreme cases. Wiring the aneurysm is far more available in abdominal aneurysm than in thoracic cases; in rare instances it seems to give relief. Galvano-puncture should be reserved for extreme cases.

3. Non-parasitic liver cysts are in general associated with cystic disease of the kidneys; they may be present in children, but frequently do not develop until late in life. Boyd gives a historical review of this subject and discusses the theories brought forward to explain this disease. Cystic disease of the liver is not amenable to treatment: "solitary cysts," however, are of considerable clinical interest. Theo-

ries in regard to this condition are numerous; the best authorities regard them as of adenomatous growths, except in the case of rentention cysts. Several illustrative cases are given in detail and in tabular form are presented 34 cases collected from the literature. He discusses the clinical features of such cysts. The treatment is operative in all cases, although the prognosis is unfavorable.

4. Lapage and Mair discuss the pathological findings in 150 cases of tuberculosis, macroscopical, in which 89% showed glandular, 54% pulmonary, and 49% intestinal and peritoneal tuberculosis. In the glandular cases the bronchial and mesenteric were most commonly affected. In 28% of the cases of thoracic glands and in 32% of those with abdominal glands there was no evidence of any lesion in the areas drained by these glands. In the pulmonary cases, 54%, the surprising feature is the large number with cavity formation even in young children. The article, though short, is of interest and value.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 5, 1913.

1. *RYALL, C. *A Lecture on Cancer of the Tongue.*
2. *O'MALLEY, J. F. *Enucleation of the Tonsils and Removal of Adenoids under Gas Anæsthesia.*
3. *WATSON-WEMYSS, H. L. *A Case of Vaquez' Disease (Polycythemia with Plethora and Splenomegaly).*
4. SANDERSON, W. *Tuberculoma of the Larynx.*
5. BLAKEWAY, H. *An Account of a Teratoma of Unusual Size Affecting the Testicle of a Horse.*
6. STEPHENS, G. A. *Distilled Water Versus Salvarsan in the Treatment of Syphilis.*
7. *BELL, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture II.*

1. This is a general clinical article on tongue cancer, briefly reviewing the subject as to diagnosis and treatment. In preventive treatment he states that tobacco is dangerous in all cases of syphilis and that its use should be prohibited in every case. All sources of chronic irritation in the mouth should be removed, although the prolonged use of strong stimulating lotions to clean up the mouth is dangerous. He urges that any chronic ulcer or papilloma refusing to yield to treatment be excised. He goes so far as to recommend the excision of the tongue in the case of a very extensive chronic syphilitic lesion unamenable to anti-syphilitic remedies. He goes on to discuss in some detail the radical operation and palliative measures. Among the latter he has tried with marked relief of pain the injection of the lingual vessels with paraffin. Finally, he believes that the thorough treatment of syphilis would well-nigh abolish cancer of the tongue.

2. O'Malley describes the operations mentioned in the title in considerable detail, urging that the removal of tonsils and adenoids be made operations of precision and not more or less "hit or miss," as many of them now are.

3. This is a detailed description of a case of polycythemia in the plethora and enlarged spleen, which the writer chooses to call "Vaquez's Disease."

7. In this second Arris and Gale Lecture, Bell discusses the relation of the thyroid to the genital system, the effects of thyroidectomy on the general metabolism, on the ovaries and uterus and on the genital functions in women in general. He then in a similar way takes up the relation of the pituitary to the genital system and the effect of pituitary insufficiency on the genital function; next he covers the same ground in relation to the thymus and suprarenals, and finally discusses the correlation of the internal secretions in regard to their genital functions.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

1. *ROBERTSON, G. M. *General Paralysis of the Insane. I.*
2. CHIENE, G. *Ruptured Ovarian Pregnancy.*
3. *SHERMAN, T. *Multiple Myeloma and Its Association with Bence-Jones Albumose in the Urine.*
4. *LINDSAY, J. *Rheumatoid Arthritis in Children.*
5. PIRIE, G. A. *Re-formation of Bone After Resection.*
6. WEBER, F. P. *Nephritis in Secondary Syphilis.*

1. In a thorough consideration of general paralysis of the insane, Robertson considers the early diagnosis of this condition, the mental symptoms, physical signs and laboratory diagnostic methods. He discusses tabes with mental symptoms, cerebro-spinal syphilis with mental symptoms and general paralysis without clinical symptoms. He then takes up the etiology, prophylaxis and treatment of this disease. As a general review of the subject this article is of interest and value.

3. Sherman in his first lecture takes up the history of multiple myeloma in connection with albumosuria and considers its clinical characteristics, morbid anatomy and histology, with particular reference to the cells present in the blood and bone marrow. There is an elaborate bibliography.

4. Lindsay in a long article considers the subject of rheumatoid arthritis in children, taking up first etiology, such as unhygienic surroundings, injury, an apparently important factor, and septic foci in the body. He then takes up age and mode of onset. It is most frequently met with in the third, fourth and fifth decades. Among signs and symptoms he describes cutaneous changes, vaso-motor disturbances, muscular atrophy, tendon contracture, and enlargement of spleen and lymphatic glands. He discusses the changes shown by the x-ray. He briefly takes up the morbid anatomy and the prognosis. Treatment varies according to the stage and intensity of the condition. Among other factors in treatment he takes up diet, drugs, local applications and spa treatment.

[J. B. H.]

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 6. NO. 22. JANUARY, 1913.

1. *V. BONIN, G. *Study of a Case of Digipituitarism.*
2. *BUTLER, G. G. *The Fragility of the Red Blood Corpuscles.*
3. *FOWELL, P. H. C. *Iron in the Blood.*
4. NAISH, A. E. *Premature Ventricular Beats in Heart-Block.*
5. LASLETT, E. E. *Observations on Auricular and Nodal(?) Extra-systoles.*
6. *LEWIS, T. *Exceptional Types of Slow Heart Action.*
7. *HUME, W. E. *A Case in Which a High Speed of the Auricles Did Not Produce Tachycardia.*
8. *GARROD, A. E., AND HURTLEY, W. H. *Congenital Family Steatorrhea.*

1. This is a report of a case of acromegaly, with autopsy. The newer work on the pituitary body and its relation to the other ductless glands is discussed, but nothing new is presented.

2. Butler's very thorough study of the fragility of the red blood corpuscles in health and disease failed to bring out much that is new or important. The increase in fragility in congenital acholuric jaundice and the decrease in obstructive jaundice were confirmed. There was also found an increase in fragility from the action of CO_2, as in cyanosis, and a decrease on exposure to oxygen. The necessity for using a constant dilution of blood and freshly washed blood corpuscles was demonstrated.

3. Fowell found Autenrieth's instrument for estimating the hemoglobin and the total iron of the blood

to be sufficiently reliable for clinical purposes. There was in all individuals an excess of iron above that which could be ascribed to the hemoglobin. In a case of hemochromatosis normal values were found for both hemoglobin and total iron, while in sulphemaglobinemia very low values for iron were found in proportion to the hemoglobin, a fact which may be explained by the presence of abnormal pigments not containing iron. In pernicious anemia a very marked increase of the "free" iron in proportion to the total iron was found, while in secondary anemia this ratio was normal.

6. Lewis describes three forms of slow action of the heart. In the first case there was a continuous slow action of the heart, each contraction of the ventricles being preceded by one of the auricles. At times, however, there was substituted a nodal rhythm, which was also slow and of about the same rate as the other. A hitherto undescribed form of slow action was shown in the second case, for no trace of auricular action could be discovered, either in polygraphic or electro-cardiographic records. The third case was one showing the Adams-Stokes syndrome, but not the signs of heart block. The ventricles beat three times for each radial puse-beat; the first of these ventricular beats was preceded by a normal "a" wave, the second was a premature ventricular beat, and was retrograde, the third beat was also premature, but was not retrograde.

7. In a few instances a high speed of the auricle has been reported, without a corresponding rate on the part of the ventricle. In Hume's case the auricular rate was 200, that of the ventricle about 87. There was a partial heart block. Later auricular fibrillation developed. The reviewer has seen a similar case of partial heart block with 2 : 1 rhythm, in which the ventricular rate did not go below 70.

8. The writers describe a very remarkable condition, hitherto unknown. In a family in which the parents were first cousins two out of five children were afflicted with the abnormality. This consisted in the passage with the stools of liquid fat. Investigation showed that only the digestion of fats was imperfect, tryptic digestion being normal. This probably acounts for the fact that the children's growth and well-being was not interfered with. The loss of fat with the stools was not so great as has been reported for cases of total exclusion of the pancreatic juice from the intestine, amounting to 25% of the intake. The administration of pancreatic preparations did not improve fat absorption. In the absence of jaundice and of intestinal disease the authors believe the developmental error to lie in the pancreas.

[W. T.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

FEBRUARY 18, 1913.

1. BAEHR, G. *Polyuria in Subacute Nephritis.*
2. *LÜDKE, H., AND FEJES, L. *Studies on the Origin of Cryptogenetic Pernicious Anemia.*
3. *FISCHER, J. *Relation Between Persistent High Blood Pressure and Kidney Disease.*
4. WEIL, A. *Influence in Human Cases of Electrical Stimulation on Stomach Peristalsis and Secretion.*
5. LIPOWETZKY, L. *Sphygmobolometric Investigations in Health and Disease by Means of Sahli's Sphygmobolographic Procedure.*
6. CHRISTEN, TH. *Observations on the Improved and Simplified Sphygmobolometer.*
7. SAHLI, PROF. *Answers to the Preceding Observation.*
8. *KAMMERER, H., AND WALDMANN, A. *Determination of the Amount of Blood According to v. Behring and Other Quantitative Studies of the Constituents of Blood.*
9. GRUND, G. *Firmly Bound Chlorine in Stomach Juice, Especially in Gastric Cancer.*
10. *TACHAN, H. *Relation of Blood Sugar and Clinical Importance of Blood Sugar Determination in Diabetes Mellitus.*
11. MÜLLER, J. E. *Rare Diseases Produced by the Diphtheria Bacillus.*
12. WYSS, H. *Negative Pressure in the Thorax.*
13. AUFRECHT, PROF. *Method of Percussion.*

2. These authors take up the different alleged causes of pernicious anemia and discuss them. They then show that by increasing the virulence of certain of the common intestinal bacteria their hemolytic properties become more marked. They do not believe that auto-intoxication products alone can cause pernicious anemia. They do believe that inflammatory conditions of the intestinal mucosa may cause these hemolytic bacteria to become more active and that they will produce lipoid substances which will continue the irritation of the intestines. How these substances get into the blood and act on it and the bone marrow they do not attempt to say.

3. Fischer takes up a series of some 500 cases of persistent high blood pressure and makes a study of the renal condition. In all the cases of blood pressure over 160 that came to autopsy some degree of interstitial nephritis was found, although in some it was hardly more than the sclerosis of age in which there is no increase of pressure. He emphasizes the importance of microscopic examination of the kidney. His feeling seems to be that practically all of these high pressures are due to renal involvement and not simply sclerosis of the smaller vessels of the body.

8. By the use of tetanus antitoxin serum Behring evolved a method of studying the amount of blood in the body. This serum is not too rapidly excreted. He would inject a known amount, and after giving it a chance to mix in the circulation, take some blood and see what amount was necessary to contain so much antitoxin, and thus figure out the amount of blood. These authors found the method satisfactory. They found that the blood represents about 10% of body weight and that it varied very little in different conditions. They also studied the viscosity, specific gravity and percentage of blood to plasma in a variety of conditions.

10. Tachan, as a result of his studies on the sugar content of the blood in diabetes mellitus and other glycosuric conditions, concludes: Hyperglycemia during fasting or following 50 grams of white bread makes a positive diagnosis of diabetes mellitus possible. The lack of hyperglycemia during the above conditions suggests a renal diabetes. The height of the hyperglycemia is indicative of the severity of the disease. The following of it during the course of the treatment aids in the prognosis. [C. F., JR.]

BULLETTINO DELLE SCIENZE MEDICHE.

DECEMBER, 1912.

1. *SANTINI, C. *Acute Necrosis of the Pancreas.*
2. MARCHESINI, O. *A Singular Case of Cancerous Fever.*
3. *LUSSANA, F. *The Hypoalimentary Doctrine in the Etiology of Pellagra.*
4. *AVONI, A. *Exclusion of the Duodenum.*
5. OSTI, G. *A Case of Thrombosis of the Right Iliac Vein Extending to the Inferior Cava.*

1. From Ruggi's surgical clinic at Bologna, Santini reports an elaborate study of acute pancreatic necrosis, with a series of 32 experiments on dogs, from which he concludes that the condition is to be considered due to a fatty acidosis of the gland, caused by transformation of the normal neutral fat to acid fat by part of the pancreatic secretion. The principal causes of the action of the pancreatic juice are the traumatisms produced by rupture of the tubules on the stasis produced by tension in the parenchyma. Death is probably due to a toxemia produced by ab-

sorption of the products of necrosis of the gland, to partial peritonitis, and to an action on the solar plexus. There is an abundant alphabetic bibliography of the subject.

3. Lussana discusses the dietary theory of the etiology of pellagra, and especially the aplastic doctrine of its causation.

4. Avoni reports his three experimental and anatomo-pathologic researches on duodenal exclusion, from which he concludes that the alterations of the excluded duodenal loop are very slight. In all the cases observed there was noted a slight atrophy of the epithelial, and especially of the connective tissue. Parlavecchio's clamp, immediately after its application, at least, keeps the pylorus closed. [R. M. G.]

JANUARY, 1913.

1. *SCHIASSI, F. *The Action of Various Sugars on the Circulation of Cold-Blooded Animals.*
2. DELITALA, F. *Contribution to the Study of Juxta-Articular Tuberculosis of the Hip.*

1. From a series of animal experiments, Schiassi finds that glucose and saccharose produce in the isolated heart an augmentation of systolic excursion; levulose, a slowing of the rhythm, accompanied sometimes by increase of the excursion; lactose manifests sometimes a perturbation of rhythm, at other times an increase of excursion without change of rhythm. Glucose and saccharose, introduced into the circulation, almost always increased the excursion and the pressure; maltose increased the pressure and the frequency of the rhythm; lactose showed the rhythm and increased the systolic excursion. [R. M. G.]

FEBRUARY, 1913.

1. *RUATA, G. O. *The Navigable Canal and the Residual Waters of the Sugar Factory of Bologna.*
2. *LANZONI, O. *Anaphylaxis and Anti-Anaphylaxis.*

1. Ruata presents an elaborate study in sanitary engineering, with four large maps and a bibliography.

2. Lanzoni presents a synthetic review of some of the recently observed phenomena of immunity. [R. M. G.]

MARCH, 1913.

1. SANTINI, C. *New Method of Aponeurotic Plastic for the Cure of Direct Inguinal Herniae.*
2. *ALESSANDRO, F. *Fasting and the Secretion of Tears. (To be continued).*
3. PANZACCHHI, G. *Contribution to the Knowledge of Pupillary Mydriasis as an Objective Symptom of Pain.*

2. As an experimental ophthalmology contribution to the physiology of the lachrymal gland, Allessandro reports from Barbèra's labaratory at Messina the results of four experiments upon dogs, from whom the tears were collected in various stages of starvation. He concludes that in complete and advanced fasting, the lachrymal secretion diminishes slowly and gradually, but never ceases. It diminishes to a less degree in incomplete fasting. It is completely restored within a few days after realimentation. From this it appears that the difference between the state of inanition and that of normal alimentation and normal nutrition of the tissues of an organism is only quantitative. [R. M. G.]

THE SEI-I-KWAI MEDICAL JOURNAL.

FEBRUARY, 1913.

1. *SATO, S., ET AL. *References from the Journal of the Tokyo Medical Association.*
2. SEWAKI, H. *A Study on the Method of Increasing Body Weight (Fourth Report).*
3. SHIZU, S. *On Two Cases of Reflex Neurosis from the Nose.*

1. Sato reports a case of extradural fibro-sarcoma of the cervical portion of the cord, and another of chronic circumscribed meningitis of the conus medullaris. [R. M. G.]

MARCH, 1913.

1. *SEWAKI, H. *A Study on the Method of Increasing Body Weight. (First report.)*
2. *SEWAKI, H. *Fifth Report on the Method of Increasing Body Weight.*
3. HIGUCHI, S. *A Report of Laparotomies Performed in the Obstetrical Department of Tokyo and Tokyo Charity Hospitals, Commencing from September, 1911, and Ending in August, 1912.*

1. and 2. Sewaki reports the results of his experiments on the injection of typhoid bacilli, killed by heat or by the addition of urea, into rabbits and into man. He finds that in both, the injection of small quantities is followed by an appreciable gain in body weight, but the injection of larger quantities leads to loss of weight. "In order to obtain an increase of weight rationally, it is useful to estimate the opsonic index; and if it presents a negative phase, the injection is to be postponed until the appearance of a positive phase." [R. M. G.]

Miscellany.

A CASE HISTORY FROM FRENCH MILITARY SURGERY.

IN the issue of the *Paris Médical* for Dec. 28, 1912, is an account, by Dr. Mousson—Larranze, of Guillaume Loyseau, a military surgeon from Bergerac in Périgord, who was a favorite of Henry IV when the latter was King of Navarre. Loyseau saved the life of Henry's lieutenant, Geoffroy de Vivant, who was seriously wounded at the battle of Coutras in 1587. The history of de Vivant's case, as quoted in the issue of the *British Medical Journal* for Jan. 11, is as follows:—

"De Vivant received two spear wounds, one going through the whole thickness of the right arm, the other above the pubes, going upwards towards the stomach. By this blow de Vivant 'was thrown backwards on the crupper of his horse; the rider was going so fast that the wood of the spear broke, and the iron remained deeply fixed in the belly.' He had often been badly wounded before, but said he never felt such pain. He had been struck on his breastplate earlier on the same day with such force that the lance broke and the iron fell on the saddle between his thighs; it dropped out when he was taken off his horse, and hence was thought to be the cause of injury. When Loyseau saw him on the third day he found that the abdominal wound had been overlooked by the surgeons. Finding, however, that the severe pain persisted, that there was much bleeding into the dressings behind, and that there was continual need of the bedpan, he probed the wound and found about half a foot upwards from the opening a

hard foreign body. He made an incision four finger-breadths in length and found two splinters of wood. Later, as the pain and bleeding continued, he probed again and found the iron end of the spear; to extract this he had to enlarge the wound and pull the foreign body out with his hand. Just as Loyseau had done this the king sent for news of the patient. By way of answer the surgeon sent him the spearhead whereat His Majesty marvelled exceedingly, and abused the other surgeons for having overlooked such a wound. The next day the patient took some broth, and an enema was administered; part of both the broth and the enema came out through the wound. Loyseau then applied a balsam to the wound night and morning, forbidding solid diet. 'God so blessed this work that on the sixteenth or seventeenth day I applied only a solid vulnerary plaster, and the said Sieur De Vivant mounted his horse and came to sleep at Sainet-Sernin at the house of a relative of his, being perfectly cured.'"

Without disparagement to Loyseau, his patient's recovery in this instance may fairly be regarded as miraculous. Loyseau subsequently cured King Henry of a chronic urethritis, and in recognition of this service in 1591 was appointed one of his surgeons in ordinary

THE ENCOURAGEMENT OF MEDICAL RESEARCH.

In the issue of *Science* for Feb. 21 is a communication from R. G. Hoskins, of Starling Ohio Medical College, suggesting "a plan for the encouragement of medical research."

"Judging by the number of bequests and endowments directed toward that end, the furthering of medical research is an attractive field for philanthrope endeavor if not for public investment. As one of the rank and file who are working toward the advancement of medical science I would suggest that no method of encouraging such research has heretofore been wholly successful. The foundation of institutes for this purpose is effective in case of the favored few who happen to be reached, but for most scientists (including the clinical variety), who are engaged in teaching in medical schools, who constitute the great proportion of the working force, such foundations are of little assistance.

"The most effective plan would seem to be that by which actual accomplishment is rewarded without unduly favoring any one. Such a result could be achieved by the simple expedient of endowing the periodicals devoted to the publication of research so that contributed articles could be paid for according to their merit. Such an arrangement would obviate the most discouraging feature of working in many institutions, the feeling that unusual effort is, from a selfish point of view, not merely futile but even detrimental, in that leisure for reading, recreation and family life is sacrificed without compensating gain.

"The plan in operation would be simplicity itself. Rewards would go automatically to those who earned them. The chief difficulty seemingly would be to secure editorial boards fair minded enough to decide justly upon the merits of each contribution, but that difficulty would be by no means insurmountable. In any case to assign a value to a given piece of research would be much easier than to forecast which of a dozen men would be accomplishing the most effective work ten years later, a forecast which, as a matter of fact, has to be made in each instance, before a desirable research or teaching position can justly be assigned."

Despite the probable difficulties of administering justly such a scheme of subsidy, there seems in this plan much which deserves serious consideration.

LIFE HISTORY OF STOMOXYS CALCITRANS.

The recent work of Rosenau, Anderson, Richardson, Brues, and others on the transmissibility of poliomyelitis through the bite of *Stomoxys calcitrans* gives especial interest and importance to the study of the life history and habits of this insect. In the weekly report of the United States Public Health Service for Feb. 21 is published the following summary of established facts on this subject by M. B. Mitzmain, entomologist of the bureau of agriculture in the Philippines:—

"1. The age at which the female begins egg laying has been determined in bred flies as the ninth day.

"2. The maximum number of eggs produced by a single *Stomoxys* may be placed at, at least, 632, and possibly 820. As many as 20 depositions are made in the lifetime of a female. The maximum number of eggs deposited at one period was found to be 94.

"3. The incubation period for these eggs is 20 to 36 hours at a temperature of 29° C. to 31° C.

"4. The larval stage under favorable conditions is usually 7 to 8 days.

"5. The imago emerges from the puparium generally in 5 days.

"6. The fly of either sex takes its initial bite in 6 to 8 hours after emergence from the puparium. Flies of this species have been observed to feed experimentally on 17 species of vertebrates, including man, reptile, bird, and rodent.

"7. It has been demonstrated that in feeding on live stock *Stomoxys* probes a wound with its labium from which non-biting flies draw blood. Surra organisms have been demonstrated in the mouth parts and stomachs of house flies used in experiments in this connection.

"8. In considering the longevity of *Stomoxys calcitrans* it has been determined that a female can live a maximum of at least 72 days and a male a period of 94 days.

"9. The life cycle of *calcitrans* varies considerably according to the treatment the young forms receive. Under optimum conditions this is a period of 12 days, but under unfavorable surroundings in light and absence of moisture, the life cycle may be extended to 35 days."

These data are based on observations made in the two years' experience which the author has had in the study of this fly.

Correspondence.

NEEDS OF THE HARVARD MEDICAL SCHOOL OF CHINA.

Boston, April 29, 1913.

Mr. Editor: The Harvard Medical School of China is endeavoring to establish a working library. The effort primarily is to secure a file of standard current periodicals. At the present time the School is subscribing for the following journals: British Medical Journal, Lancet, Journal of Tropical Medicine and Hygiene, Transactions of the Soc. of Tropical Medicine and Hygiene, London; Annals of Tropical Medicine and Parasitology, Liverpool; Philippine Journal of Medical Sciences; China Medical Journal, Medical Review, Archives of Internal Medicine, Journal of Infectious Diseases, Journal of Medical Research, Journal of the American Medical Association, American Journal of Medical Sciences, Kala Azar Bulletin, Zeitschrift für Hygiene und Infektionskrankheiten, Centralblatt für Bakteriologie, etc., Archiv für Schiffs- u. Tropenkrankheiten, Berliner Klin. Wochenschrift, Wiener Klin. Wochenschrift, Deutsche med. Wochenschrift.

The efficiency of the library would be greatly improved if the back numbers of these journals for at least 10 or 12 years could be added to the current files. If that were done, the library would probably be the best medical library in China—such being the meagreness of equipment in medicine in that country.

The suggestion has been made that it might be possible to get donations of back files from alumni of the Harvard Medical School or a special donation for this purpose. On the chance that one or more of your readers might be able and willing to help in this manner, I am presenting the opportunity. Any communications regarding the Shanghai School and its purposes may be addressed to me at the Harvard Medical School, Boston, Mass.

Yours truly,

W. B. CANNON.

SOCIETY NOTICE.

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the New Bedford Public Library, Pleasant and William Streets, on Thursday, May 8, 1913, at 5 P. M.

Subject: "Diseases of the Stomach."

1. Medical Diagnosis and Treatment, Dr J. G. Hathaway.

2. Surgical Diagnosis and Treatment, Dr. P. E. Truesdale.

Discussion opened by Dr. F. B. Lund of Boston.

The Censors will meet at the same place at 3 P. M. to examine candidates. Diplomas must be brought to the meeting.

A. J. ABBE, M.D., *Secretary.*

RECENT DEATHS.

DR. MARY BEATTY CORNISH, who died recently in Everett, Mass., was born at Caledonia, Ont., in 1883. She received the degree of M.D. in 1906 from the University of Toronto, and subsequently served as house physician at the Children's Hospital in New York City, and as pathologist at St. Luke's Hospital, New Bedford, Mass. In 1911 she removed to Bridgewater, Mass., and in 1912 to Everett, where she was engaged in practise at the time of her death. She is survived by her husband.

DR. JOSEPH BENSON FENWICK, who died in Chelsea, Mass., on April 26, was born at St. John, N. B., in 1838. After receiving the degree of M.D. from the Harvard Medical School in 1872, he served for two years at the United States Marine Hospital, Chelsea, Mass.; and, subsequently settling in Chelsea, continued there in the practise of his profession until his death. He was for a time city physician of Chelsea, and a member of the staff of the Frost Hospital in that city. He was a Fellow of The Massachusetts Medical Society, and a member of the American Medical Association. He is survived by one son, also a physician.

DR. EDGAR GARCEAU, who died on April 29 in Boston, was born at Roxbury, Mass., in 1865, the son of a physician. He graduated in 1884 from the Roxbury Latin School, and in 1890 received the degree of M.D. from the Harvard Medical School. He served as house officer at the Boston City Hospital, and had practised his profession in this city until his death. He was gynecologic surgeon to the Boston Dispensary and to St. Elizabeth's Hospital, Boston, and consulting gynecologist to the Quincy (Mass.) City Hospital. He was a member of the Boston Society for Medical Improvement, L'Association Française d'Urologie of Paris, France, American Gynecological Society, Harvard Medical Alumni Association, American Medical Association, an honorary member of the Academia Nacional de Medicana de Rio Janeiro of Brazil, a member of the Massachusetts Medical Society, Roxbury Clinical Record Club, Boston Medical Library, Obstetrical Society of Boston, Massachusetts Benevolent Society, Association Internationale d'Urologie, and the American Urological Association. His best known work is his book on "Tumors of the Kidney." He is survived by his widow and by two sons.

DR. CHARLES H. KNIGHT, who died on April 29 in New York City, was born at East Hampton, Mass., in 1849. He was professor of laryngology in the Cornell Medical School, and surgeon and director of the Manhattan Eye, Ear and Throat Hospital.

CHANGES IN NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ended April 26, 1913:—

P. A. Surgeon M. H. Ames, to duty Navy Yard, Boston, Mass. (from waiting orders).

Asst. Surg. J. A. Bass, from Naval Hospital, Canacao, P. I., to home, wait orders.

Asst. Surg. G. E. Thomas, from U. S. S. *Helena* to home, wait orders.

Surg. H. D. Wilson, from Navy Recruiting Station, Buffalo, N. Y., to U. S. S. *New Jersey*.

Surg. L. W. Bishop, from U. S. S. *New Jersey* to home, wait orders.

Assist. Surg. J. A. Tompkins, Naval Medical Reserve Corps, from Navy Recruiting Station, New York, N. Y., to Navy Recruiting Station, Buffalo, N. Y.

BOOKS AND PAMPHLETS RECEIVED.

Death by Electric Currents and by Lightning. By A. J. Jex-Blake, M.A., M.B. Reprint.

Original Articles.

THE EXCRETION OF FORMALIN IN THE URINE; AN INQUIRY INTO THE ACCURACY OF BURNAM'S TEST.*

BY GEORGE G. SMITH, M.D., BOSTON,
Genito-Urinary Surgeon to Out-Patients, Massachusetts General Hospital.
(From the Genito-Urinary Department.)

ONE year ago, Burnam of Baltimore described to this society a test for the detection of free formaldehyde in the urine after the ingestion of hexamethylenamin. This test differed from its predecessors in that it differentiated between formaldehyde and the compounds from which this substance is derived.

Burnam describes the test in these words: "This test consists of adding to the suspected fluid, 3 drops of 0.5% aqueous solution of phenolhydrazine hydrochloride and then 3 drops of a 5% aqueous solution of sodium nitroprusside, then an excess of saturated aqueous solution of sodium hydroxide. It is important that the solution to be tested, as well as the sodium hydroxide, be slightly warmed a little more than body temperature. When formaldehyde is present in solutions of 1-20,000, or stronger, there follows an intense blue color, which gradually changes to green, and then after a few minutes to brown. In solutions of less than 1-20,000 the first color is the intense green, which passes off into brown. The test is delicate down to 1-150,000 or less. When a solution is tested and found to be negative, as is the case when urotropin is noted, it can be acidulated with sulphuric acid, heated to boiling, cooled off and tested, when the reaction will be positive, due to the breakdown of urotropin into formalin."[1]

Since the appearance of Burnam's paper there have been published at least two articles upon this test.[2,3] These disagree in certain minor conclusions, chiefly as regards the color obtained, but both are in accord with Burnam's statement that only in somewhat over one-half the cases to whom urotropin is given, does free formaldehyde appear in the urine. In a recent paper, Talbot and Sisson declare that "all children are capable of breaking down hexamethylenamin."[4]

The work reported in this paper aims to decide two questions: first, is Burnam's test reliable; second, why is not urotropin broken up in all urines?

Many careful observations upon the technic of Burnam's test have convinced me that it will always detect the presence of free formaldehyde in any urine, whether acid or alkaline, even to the stage of ammoniacal decomposition. The weakest solution which gives what I have considered a definitely positive reaction (a blackish-green) is in the neighborhood of 1-40,000; the blue color I have found only in solutions of 1-10,000 or stronger. It is desirable to warm the sodium hydroxide, as Burnam suggests; in the border-line cases, this may make the difference between a positive and a negative result. The degree to which the suspected urine is heated is also a factor of no mean importance, and in this series of observations I have tried to warm each specimen to the same degree, that is, until it began to feel distinctly warm to the hand. Five c.c. of urine will suffice. It is desirable that the specimen be examined within a few hours after urination, as ammoniacal changes on the one hand and the prolonged action of acid on the other, may influence the amount of formaldehyde.

Solutions of urotropin have always given negative results with the test, except when added to very acid urine. In such cases, formaldehyde is liberated promptly in quantity sufficient to give a faint test.

The preceding observations lead to the conclusion that Burnam's test is simple and accurate.

An understanding of the cause of the liberation of formaldehyde from urotropin is of considerable importance. The fact that hexamethylenamin and its compounds are the only drugs we have which really exercise much influence upon bacterial growth in the upper urinary tract, and the argument of Burnam, the truth of which is well sustained by experimental and clinical evidence,[5] that good results are obtained only when the drug is split up into formaldehyde and ammonia, make it extremely desirable that we should know the nature of this process. Burnam says (page 295, *Trans. American Urological Association*, 1912), "It is my impression that the formalin liberation is due to a specific function of the renal epithelium." That this theory is incorrect, and that the liberation of formaldehyde is not due to an enzyme or ferment, is proved by the following experiment.

Normal urine of a considerable degree of acidity was divided into two portions of 50 c.c. each. One of these was brought to the boiling point and boiled for ten seconds, in order to destroy all ferments. It was cooled, and to each of the two portions, and to 50 c.c. of distilled water for a control, grains 10 of urotropin were added. Free formaldehyde was absent from all three immediately after the addition of the urotropin. They were then incubated for one hour at 50° C.; at the end of that time both the urines were strongly positive for formaldehyde, the water was negative. Clearly such results rule out a specific function of the renal epithelium. It is evident, moreover, that the urine must possess some power, not due to a ferment, which is not present in distilled water.

With the hope of ascertaining the nature of this difference, a large number of urines from patients who had been given urotropin were studied in regard to their acidity according to litmus, and their hydrogen ion concentration; the findings were then compared with the results of the test for free formaldehyde.

* Read before the American Urological Association, Boston, April 17, 1913.

For instruction in the subject of hydrogen ion concentration, and indeed for many useful suggestions, I am deeply indebted to Dr. W. W. Palmer, Walcott Fellow in Clinical Medicine, Harvard Medical School, whose work with Henderson on the hydrogen ion concentration of urine has been published in the *Journal of Biological Chemistry*.[4]

The facts essential to an understanding of this question are these: the hydrogen ion concentration of a fluid represents the amount of free hydrogen ions in that fluid. The larger the proportion of these, the greater is its acidity,—that is, its power to combine with an alkali. Chemically pure water contains one ten-millionth gram of free hydrogen in one liter, a quantity which is more conveniently expressed by the logarithm -7. (It is customary to omit the minus sign.) Since it also contains an equal number of free hydroxide ions, it is neutral. In estimating the hydrogen ion concentration of urine a series of standards of the following values are used:—

7.40	Hydrogen ion con. of blood and of the most alkaline normal urine observed
7.20	
7.00	True neutrality
6.70	
6.30	
6.00	The average of 100 normal cases.
5.70	
5.30	
5.00	
4.70	The most acid urine observed.

(The above table is taken from Henderson and Palmer's article.)

Normal urines range from 5 on the acid side to 7.40 on the alkaline. Ammoniacal urines may have a hydrogen ion concentration as low as 9. The method of determining the hydrogen ion concentration by means of indicators has been shown by Salm, Sörenson, Henderson and others to be sufficiently accurate for clinical purposes.

The acidity of urine, as estimated by its hydrogen ion concentration, does not necessarily coincide with its acidity, as indicated by litmus. A series of 200 observations on specimens from 27 individuals gives the following comparisons:—

Reaction to litmus.	No. cases.	H. ion con.	Aver.
Very alkaline	14	8 to 9	8.72
Alkaline	25	7.20 to 9	7.70
Slightly alkaline	12	7.10 to 7.40	7.30
Neutral	17	7 to 8	7.20
Slightly acid,	16	5.85 to 7.40	6.97
Acid	88	5 to 7.20	5.95
Very acid	28	5 to 6.15	5.50

From these figures it appears that, although in a general way the litmus reading follows the hydrogen ion concentration, there is, nevertheless, considerable discrepancy. Thus, of the 17 specimens neutral to litmus, 15 had a hydrogen ion concentration of less than neutrality, that is, were really alkaline; of the 16 slightly acid to litmus, 11 were really alkaline; of the 88 acid to litmus, 9 were really alkaline.

From a practical standpoint, urines which give a blue color to red litmus may be confidently regarded as alkaline, 7.20 or less; those which give a strongly red color to blue litmus, as acid, 6.15 or above; those neutral to litmus are probably mildly alkaline, 7 to 7.20; those slightly acid to litmus may be acid, neutral or alkaline, 6 to 7.20.

The fact that the litmus test does not indicate the true acidity of urine may explain in part the statement made by Burnam and by L'Esperance (loc. cit.) that the reaction does not materially influence the liberation of formaldehyde.

Comparison of the hydrogen ion concentration with the presence or absence of formaldehyde shows that there is a constant relation between the two. Urines were tested after the ingestion of varying amounts of urotropin, from a single dose of five grains to four doses of ten grains per day. Every specimen which showed no formaldehyde was tested for urotropin, so that the question of the elimination of this drug might not be confused with that of its disintegration.

I have examined 213 specimens collected from 50 individuals, most of whom had normal kidneys. Positive tests are those which show more than a mere trace of formaldehyde.

One hundred and ten urines were positive. Of these 102 had a hydrogen ion concentration of 6.80 or more, that is, were truly acid. Eight had hydrogen ion concentrations of less than 7, that is, were truly alkaline. These were divided as follows: 7.10, 2 cases; 7.15, 1 case; 7.20, 5 cases.

One hundred and three showed no formaldehyde. Of these 82 had hydrogen ion concentrations of 7.10 or less, that is, were alkaline. Four were neutral. Seventeen were acid, of the following hydrogen ion concentrations: 6.85, 2 cases; 6.70, 3 cases; 6.30, 3 cases; 6.15, 1 case; 5.85, 2 cases; 5.70, 2 cases; 5.50, 1 case.

Assuming for the moment the correctness of the theory that acidity is the cause of formaldehyde liberation, how can one account for the number of exceptions to this rule? Several influences come into play to complicate the question. Let us take the case of a man who at 10.30 a.m. passes urine of 6 in which there is much free formaldehyde. His next urination at 1.30 p.m., shows a hydrogen ion concentration of 7.20 and still free formaldehyde. It is unlikely that the reaction shifted suddenly; he must have secreted an acid urine for a portion of the three hours, and it is probably due to the action of this acid urine that enough formaldehyde was liberated to appear in the total amount. Individuals with ammoniacal fermentation in the bladder may secrete a urine which is acid until it decomposes in the bladder. In this way enough formaldehyde to give the test may be liberated in the urine before it becomes alkaline, although the ammonia gives a low hydrogen ion concentration. These are not suppositions; they are based upon actual findings.

Of the 17 acid urines which contained urotro-

pin, but no free formaldehyde, two, one of 5.85, the other of 5.70, came from individuals who at the next urination showed plenty of formaldehyde, and were obtained, furthermore, within two hours after the ingestion of the urotropin. In neither case was urotropin present in these negative urines in quantities sufficient to give more than a moderately positive test.

Thirteen of the specimens, which although acid, contained no formaldehyde, were collected from old men with ammoniacal urine and infected kidneys. To exclude the influence of ammoniacal decomposition in the bladder the urine in these cases was obtained through an inlying catheter as soon as it issued from the ureters; the influence of time was thus excluded, and time, as will be shown later, may be a not inconsiderable factor in the liberation of formaldehyde. It was noted that free ammonia could be driven off all these urines by heating, and that, in several cases, the decrease in ammoniacal decomposition in the urine occurring after prostatectomy was accompanied by a greater liberation of formaldehyde.

The failure of certain acid urines to liberate formaldehyde may be thus explained, in 13 out of 17 cases, by the presence of free ammonia or by the exclusion of the influence of time.

There is, I believe, adequate evidence that urines of a hydrogen ion concentration of 6.70 or more do split up urotropin; that those of 7.20 or less never do so; that in urines between these limits formaldehyde may or may not be found. As further illustration of this, two typical series of observations are appended:—

1. Surgical Patient; Healthy Kidneys. 8 A.M. given seven grains urotropin.

Time of urinaton	Reaction to litmus	H. ion con.	Form.	Urot.
10 A.M.	Neutral	7.20	—	*
12 M.	Alkaline	7.40	—	**
2 P.M.	Slightly acid	7.00	—	*
4 P.M.	Acid	5.70	***	
6 P.M.	Acid	5.85	**	

2. Surgical Patient; Healthy Kidneys. 8 A.M. given seven grains urotropin.

Time of urinaton	Reaction to litmus	H. ion con.	Form.	Urot.
10 A.M.	Acid	5.30	***	
12 M.	Acid	5.50	***	
2 P.M.	Acid	5.50	***	
4 P.M.	Slightly acid	7.30	—	***
6 P.M.	Acid	5.50	***	
8 P.M.	Slightly acid	7.20	—	*

Note: * slightly positive.
** moderately positive.
*** strongly positive.

A conclusion similar to the one just stated was reached by Jordan. He showed, in some very careful work on urinary antiseptics, that in urine of average acidity, containing one part of urotropin in 1000, about 10% of the urotropin was split up into formaldehyde. In alkaline urines (measured by titration) urotropin was not split up at all; in neutral or faintly acid urines, only to a slight degree; in acid urines, to a considerable degree. "The process of conversion into formaldehyde," he says," is a simple chemical one, which occurs in all solutions of urotropin under conditions of dilution, temperature, acidity and time, which are identical with those occurring in the body.'"

The fact that acidity is essential for the liberation of formaldehyde explains the observation of Burnam, which we were able to confirm in a few instances, that the spinal fluid may contain urotropin, but does not break it down. Spinal fluid has a hydrogen ion concentration of about 8.30 (personal communication from Dr. Palmer.)

As to the question whether all acids act upon urotropin to the same degree, I have the following data: sodium acid phosphate and B-oxybutyric acid were diluted, reduced to 5.30 and tested separately. Both split up urotropin in one hour, although not to the same degree.

A series of urines of varying hydrogen ion concentrations were paralleled by a series of standard solutions composed of acetic acid and sodium acetate. To 20 c.c. of each grains 10 of urotropin were added, the tubes were shaken and placed in a temperature of 85° F.

	H. ion con.	Result after 10 min.	After 1 hr., 45 min.	After 48 hrs.
Urine	5.40	***	***	***
Solution	5.30	**	***	***
Urine	5.60	***	***	***
Solution	5.70	*	**	***
Urine	6	—	**	*
Solution	6	—	trace	**
Urine	6.70	—	—	—
Solution	6.70	—	—	—

This experiment shows the urine to be slightly more active than the corresponding solution. It shows, however, a close parallel between their urotropin splitting powers and emphasizes as well the influence of time upon this process. The rapidity with which formaldehyde is liberated, at least in the test-tube, depends upon the acidity of the urine, the temperature and the amount of urotropin present. I am aware that formaldehyde may be found in specimens obtained by the ureteral catheter, and that a strongly acid urine will liberate formaldehyde in two minutes; the preceding experiments, nevertheless, indicate strongly the probability that the liberation of formaldehyde in man continues, provided the urine be acid, as long as urotropin remains in the bladder.

From the work done with this drug, I have reached these conclusions as to dosage and output: Five grains of urotropin, although often sufficient to give a strong formaldehyde test, does not apear in the urine with enough regularity to warrant its routine use. Grains 7 is nearly always followed by good quantities of formaldehyde or urotropin lasting for from 6 to 10 hours. Grains 10 every 8 hours or grains 15 at 7 a. m. and 6 p.m. is the dose which I should recommend.

The kidneys of chronic nephritis, to judge from a few observations, excrete urotropin much more slowly than do normal kidneys. One dose of grains 15 has given traces of formaldehyde in the urine for 36 hours. These urines are abnormally acid; formaldehyde has always been liberated.

In cases with persistently alkaline urine, we have tried to change the reaction by the use of various drugs. Sodium benzoate, grains 15 t.i.d. has had no appreciable effect; boric acid, grains 10 t.i.d. was effectual in several cases, but we are warned by some writers[5] of its toxicity. Sodium acid phosphate given directly after meals in one-half to one teaspoonful doses seemed more efficient than the other two, but in one case its use had to be abandoned because of the resulting diarrhea.

Among the 50 individuals whose urine we examined, there was only one (diverticulum of the bladder and pyonephrosis), in whose urine free formaldehyde was never detected.

CONCLUSIONS.

1. Burnam's test for formaldehyde in urine is definitely positive when this substance is present in the strength of 1 part in 40,000 or more.

2. The urine should be examined as soon as possible after it has been voided. A negative test at one time does not prove that formaldehyde is never liberated.

3. From the evidence at hand, we believe that formaldehyde is liberated from the hexamethylenamin by the acids of the urine, not by a specific function of the renal epithelium.

4. This process may take place in the kidney, but is continued in the bladder.

5. Litmus paper, as an indicator of the true acidity of the urine, was unreliable in about 25% of the cases examined.

6. The degree of acidity of urine, as measured in terms of its hydrogen ion concentration, showed in our cases a constant relation to its power to set free formaldehyde. The higher the acidity, the greater was this power.

7. The requisite amount of acidity, which is not great, is present in the majority of normal urines, and can be secured in almost all cases by the use of boric acid or sodium acid phosphate.

8. The writer disagrees with the statements of Burnam and L'Esperance that only 50 to 60% of individuals break up urotropin. Examination of 213 specimens from 50 individuals showed that only in the urine of one case was formaldehyde never found.

The writer wishes to acknowledge his indebtedness to those whose assistance has made this work possible.

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SEROUS AND SUPPURATIVE LABYRINTHITIS,—DIFFERENTIAL DIAGNOSIS.*

BY IRVING WILSON VOORHEES, M.S., M.D., NEW YORK CITY.

WHILE one of the most difficult problems in otology, the differentiation between serous and suppurative labyrinthitis is, nevertheless, one of the most important, since its exact determination involves both the loss of hearing and possible loss of the patient's life. If we operate on a serous labyrinthitis under the supposition that we are dealing with the suppurative type, we destroy the patient's hearing by our operative attack, when the hearing might have returned to normal if we had but used the expectant treatment. But, on the other hand, if we refuse to operate on a suppurating labyrinth, thinking that we have to do with a serous condition that will soon clear up spontaneously, we not only subject the patient to loss of his hearing, but expose him to loss of life from some complication of the suppurative process. We face, therefore, the very sharp horns of an unpleasant dilemma.

Gustav Alexander has asserted that non-suppurative (serous) inflammations of the labyrinth come on with well-defined, stormy labyrinthine symptoms, and while he differentiates six different stages in the onward march of the pathological process in the internal ear, he does not sufficiently differentiate between the types of disease.

Let us first take up the type known as

SEROUS LABYRINTHITIS.

We have to consider two forms of this condition: 1. The form which comes on as an accompaniment or result of some destructive process on the inner tympanic wall. When the bony labyrinthine capsule is eroded, the membranous labyrinth is directly affected by conditions in the outer world, such as changes in pressure and temperature of the atmosphere. This condition is known as fistula and is usually associated with a circumscribed labyrinthine inflammation. Any agent, therefore, which increases or diffuses this inflammatory process sets up very active symptoms, and the pathological process producing these symptoms is known as *diffuse serous secondary labyrinthitis, i.e.* a serous inflammation in the labyrinth secondary to some pre-existing destructive process of the labyrinth capsule.

2. The second form is a sudden non-suppurative inflammation of the labyrinth due to a disturbance in the vascular system of the middle

* Read before the Medical Society of the State of New York, April 30, 1913.

and internal ear. It can arise in the course of acute otitis, in the course of chronic otitis, in cases not perfectly healed after the radical operation, or a short time after the radical operation, and is often merely an adjacent edema in the labyrinth associated with a middle ear disease. This form is, therefore, known as *diffuse serous induced labyrinthitis.*

DIFFUSE SEROUS SECONDARY LABYRINTHITIS.

In the diffuse serous secondary labyrinthitis there is still some remnant of function, and either the hearing or the caloric or the turning test or the fistula symptom is present to a greater or lesser degree. Even when the hearing is completely lost, the caloric and turning tests are rarely entirely gone. The history of such a case is somewhat as follows:—

The patient has been under observation and has manifested signs of circumscribed labyrinthitis. Suddenly, severe dizziness ensues. The dizziness often sets in suddenly without any previous history of dizziness. There is marked rotatory spontaneous nystagmus to the sound side, and the patient has severe disturbances of equilibrium and frequent attacks of vomiting. The hearing is bad or may be gone entirely, conversation voice being perceived only *ad concham.* The caloric reaction is still present, or, if it is absent, the patient is usually totally deaf in the diseased ear, that is to say, both the vestibular and cochlear portions of the labyrinth are out of function. This secondary serous type comes on insidiously or after the radical operation, and the difference between it and diffuse suppurative manifest labyrinthitis can only be determined with certainty by exhaustive and accurate functional tests. So long as there is a remnant of labyrinthine function, that is to say, hearing, caloric reaction or turning reaction, we are not yet dealing with a suppurative diffuse disease, but with a serous labyrinthitis.

If a patient comes under observation suffering from diffuse serous secondary labyrinthitis, then we must wait until its course is run. This usually requires only a few days, but we must test the labyrinth function frequently during this time. If, after the disappearance of stormy symptoms a remnant of labyrinth function is still present, that is to say, if even a slight degree of hearing, caloric reaction, turning reaction or fistula symptom can be elicited, we should perform only the radical operation and subsequently make frequent functional tests to see if this remnant of function improves or becomes lost.

DIFFUSE SEROUS INDUCED LABYRINTHITIS.

During the radical operation there is doubtless considerable trauma and shaking up of the labyrinth, as a result of which a strong reactive inflammation is natural. In general, induced serous labyrinthitis takes place from one to three days after the radical operation. For the most part it comes on when the patient is feeling quite well, that is, when the patient on the second or third day after operation is beginning to recover from the disagreeable symptoms due to the narcosis and from the operative trauma. Suddenly, nystagmus to the sound side, dizziness, vomiting, disturbances of equilibrium (patient lying upon his sound side) set in. Functional tests show a marked diminution of hearing power or total deafness in the diseased ear, with retained caloric reaction. In nine out of eleven cases reported by Ruttin, the hearing power was diminished while the vestibular reaction was retained. The hearing power was absent with retained vestibular reaction in the other two. We must assume in the light of the evidence adduced by Voss and others, that there are cases of serous labyrinthitis with loss of hearing power and lost caloric reaction, but we have to consider these as if of the diffuse suppurative type, since we have no clinical guide as to the differentiation of the two conditions.

Doubtless in Voss's cases such a serous induced labyrinthitis did take place, with complete loss of function. It seems that, after an acute otitis, serous induced labyrinthitis occurs more frequently than in the course of chronic middle ear suppuration or than following the radical operation.

In diffuse serous labyrinthitis one sometimes observes, but not very often, nystagmus to the diseased side. According to Alexander, this corresponds to the first stage of irritation. However, we believe rather that in these cases showing nystagmus to the diseased side there is no demonstrable serous labyrinthitis present, nor is it possible to produce nystagmus attacks by movements of the head. We are led to this conclusion after observation of cases with labyrinthine fistula. Here, since the circumscribed lesion is already in the labyrinth, diffuse serous labyrinthitis comes on very quickly after a mastoid operation, and we are able to observe it in its very beginning since our attention is already directed to the labyrinth. In these cases the nystagmus is from the first directed toward the sound side. One can well imagine that induced serous labyrinthitis sometimes follows circumscribed inflammation, especially if there is disease of the labyrinthine wall. Induced serous labyrinthitis can go over into the diffuse suppurative type. This we must assume to have taken place if we find that the labyrinth function is completely lost. In this case the indication for labyrinth operation is present. Simultaneously, with more or less complete loss of function, both in induced and in secondary diffuse serous labyrinthitis, facial paralysis may arise. This we must regard as a manifestation of some inflammatory exudative process in the facial canal. The duration of the stormy symptoms is in general from three to eight days, after which a steady decline in the severity of the symptoms is the rule.

We frequently see cases which we must desig-

nate as transitory induced serous labyrinthitis. These are for the most part chronic suppurative middle ear processes, in the course of which the patients have become deaf without having lost the vestibular reaction. Histologic demonstration of such transitory serous labyrinthitis is to be found in the case of Herzog and in the cases of cholesteatoma deafness reported by Siebenmann and Nager. There probably occurs in unhealed radical-operated cases a disease in the labyrinth wall which leads, sooner or later, to labyrinth inflammation. Alexander's opinion is probably correct that the relatively frequent deafness in the operated ear, occurring after radical operations is to be explained in this way. Thus we might explain the case reported by Wojatschek, in which seven years after an operation for acute mastoiditis a serous labyrinthitis occurred, with loss of hearing and of caloric reaction. Two weeks later labyrinth function was almost completely normal again.

SUPPURATIVE LABYRINTHITIS.

This may be divided into diffuse suppurative *latent* labyrinthitis and diffuse suppurative *manifest* labyrinthitis. For convenience of study the latent type may be regarded as chronic, the manifest as acute labyrinthitis, although this classification must not be considered a hard and fast one.

DIFFUSE SUPPURATIVE LATENT LABYRINTHITIS.

The patient has had a chronic purulent otitis media for several months or years, with occasional attacks of severe dizziness. Upon examination there are no symptoms save slight spontaneous nystagmus in view to the right or left (first degree nystagmus). There is complete deafness, with no response to the caloric, turning or fistula tests. If osteosclerosis exists as a result of prolonged productive inflammation, the turning reaction may be present because of the so-called "compensation" reaction. To show this there must have been complete destruction of the nerve-endings and sense cells. If the latent labyrinthitis is of the sequestration type then the following diagnostic triad is present: Total deafness, inexcitability of the vestibular apparatus to caloric, turning and mechanical irritations and facial paralysis. Cases have been reported, however, in which nearly the entire labyrinth was extruded without facial paralysis.

DIFFUSE SUPPURATIVE MANIFEST LABYRINTHITIS.

The history of such a case is in outline as follows: The patient has had a middle ear suppuration for years. Suddenly, violent vestibular symptoms occur. There is severe dizziness with marked rotatory nystagmus to the sound side, together with vomiting and disturbances of equilibrium. Functional testing shows total deafness on the diseased side, with absence of the caloric, turning and fistula tests; in short, absolutely no function can be determined in the labyrinth by any of the tests which we now have at hand. It is also possible that a suppurative inflammation of the labyrinth can take place without the migration of bacteria, through the round window or through the oval window. The labyrinth suppuration arising in the course of an acute otitis we must look upon as possessing a special tendency to produce meningitis. The question therefore arises whether in a diffuse labyrinthitis, with complete loss of function following an acute otitis, the labyrinth should be opened or not, since one does not know whether it is a suppurative or merely a serous labyrinthitis. Unfortunately the number of observations is not yet sufficient to determine this. However, according to the latest opinion, we should doubtless wait to see whether the symptoms increase or diminish. As a rule, the labyrinthitis associated with an acute otitis appears to be merely of a serous nature; but even suppurative labyrinthitis associated with an acute otitis may heal, as the very carefully recorded case of Marx and the panotitis of Politzer have demonstrated. The possibility of spontaneous healing is likewise not to be denied in acute suppurative mastoiditis, but although knowing this possibility, no otologist in these days avoids operating on this account.

CONCLUSIONS.

Differential diagnosis between serous and suppurative labyrinthitis is frequently impossible. It is of supreme importance for the determination of operative procedures. In general, if the slightest remnant of function is still present the labyrinth should not be disturbed, *i.e.* there should be no shaking up, no probing, no meddling of any kind, and absolute quiet in bed should be enjoined. If the labyrinth is completely out of commission, the history of the case must be carefully weighed and as accurate a diagnosis as possible arrived at. One may wait with the knife in hand a week or ten days, and if there is the slightest pejoration of the symptoms a labyrinthine operation should then be performed.

DIFFERENTIAL TABLE.
(MODIFIED FROM BUTTIN.)

Type of Disease.	Anamnesis (History)	Present Symptoms	Nystagmus	Hearing	Caloric Reaction	Turning Reaction	Fistula Test
Diffuse serous secondary labyrinthitis.	Dizziness some time ago	+	To sound side	— +	+ —	+ —	+
Diffuse suppurative manifest labyrinthitis.	Dizziness present or absent	+	To sound side	—	—	—	—
Diffuse suppurative latent labyrinthitis.	Dizziness some time ago	—	Absent or to both sides	—	—	— + if compensated	—

ACUTE ANGULATION OF THE TERMINAL ILEUM AS A CAUSE OF INTESTINAL OBSTRUCTION IN CERTAIN CASES OF ACUTE APPENDICITIS.

BY DAVID CHEEVER, M.D., BOSTON.

No more frequent and fatal complication of acute appendicitis exists than that comprising the various types of postoperative intestinal stasis. These may be assigned roughly to two main groups: First, those due to failure of peristalsis, resulting in intestinal paresis, distention, and stasis of the fecal current; and second, those due to mechanical obstruction resulting usually from kinks, twists, adhesions or bands. The most familiar examples of the first group are the cases of paralysis associated with peritonitis, causing a toxemia acting either after absorption or locally on the neuromuscular mechanism of the intestine; the paralysis due to trauma, seen in the course of long abdominal operations involving manipulation and exposure; and that due to mesenteric thrombosis. Many of these cases are relieved spontaneously or by appropriate non-operative measures, but not a few require interference by enterostomy, as an emergency measure to provide drainage until peristalsis may be restored, and no more anxious and difficult decision confronts the surgeon than when to interfere. The cases of mechanical obstruction forming the second group are sharply marked etiologically, but if they occur early they are unfortunately difficult to separate from the paralytic cases. This does not refer to the late secondary cases of ileus occurring weeks, months or years after the operation. Inasmuch as mechanical obstruction, once established, is rarely relieved except by operation, and since the mortality of such secondary interference, high enough anyway, is vastly increased by delay, it becomes imperative to make the diagnosis and proceed to the relief of these cases at the earliest possible moment.

Since in appendicitis the area immediately adjacent represents the usual region of peritonitis with resulting possibilities of adhesions, it is natural that the terminal ileum should be the most frequent seat of mechanical obstruction due to this cause. This is recognized by most surgeons and is mentioned by many writers on the subject of the post-operative sequelae of appendicitis. There is a small subdivision of this group of cases which seems to the writer to present a fairly clean-cut clinical picture, and therefore to offer possibilities of early diagnosis and successful interference justifying its brief presentation.

Three cases called attention to this condition:—

Case 1. Esther C., 7 years of age, entered the City Hospital December 8, 1906, with a story of abdominal pain and vomiting for two days. She presented the clinical picture of a spreading peritonitis of the lower abdomen and pelvis, probably due to appendicitis. Incision behind the right rectus showed free pus in the right iliac and hypogastric regions, and pelvis. The appendix was found acutely inflamed, hanging over the pelvic brim, and adherent to the lateral wall of the pelvis; the tip of the appendix was perforated and reached to the pelvic floor. The appendix was removed, the pus was wiped away and cigarette drains were carried to the right iliac fossa and pelvis. The case progressed favorably for three days, but on the fourth day distention, constipation and vomiting began. Readjustment of the wicks failing to relieve, the wound was explored hastily and fruitlessly owing to the patient's condition, and an ileostomy was made through a small incision in the left linea semilunaris. This artificial anus tided over the crisis and, on January 1, 1907, a loop of terminal ileum adherent in the pelvis and containing in its proximal portion the artificial opening, was excised and the bowel repaired by end-to-end anastomosis. The patient made a satisfactory recovery.

Case 2. Hugh McC., 24 years of age, entered March 6, 1907, with a history of abdominal symptoms for three weeks, becoming acute during the last two days. The abdomen was tender, dull to percussion and spastic in the right iliac and hypogastric regions. Incision showed free turbid fluid and a gangrenous appendix lying in the pelvis. It was removed and the infected area drained. The patient showed marked toxemia but rallied and did well for three days, when vomiting and distention appeared with failure to procure relief by enemata. Time was wasted by these measures and a final ileostomy did not avert a fatal result. Examination through the wound showed the terminal ileum adherent and sharply angulated in the pelvis.

Case 3. Edith D., 18 years, single, entered June 30, 1911, with a history of acute abdominal symptoms for four days. The whole lower abdomen was spastic and tender, especially on the right where a mass was palpable. On opening the abdomen through the right rectus a free turbid exudate was found with an incompletely walled-off abscess occupying the right half of the pelvis and right iliac fossa. The appendix was seminecrotic, perforated, and adherent to the wall of the pelvis and its tip to the pelvic floor. It was removed and the infected area drained in the usual way. Although very ill, the patient began a rapid convalescence with soft abdomen, good bowel movements and diminishing pulse rate. On the sixth day, elevation of the pulse and temperature with other symptoms suggested a residual abscess whose presence was not confirmed by digital examination. Distension began to appear but enemata gave some results. Time was wasted in the adjustment and withdrawal of drains and by palliative measures. On the eighth day vomiting began and the abdomen was reopened. Precious moments were lost in exploring and controlling the distended bowel which threatened fatal evisceration. The condition as to appendicitis was satisfactory, but the terminal ilium was found adherent along the tract formerly occupied by the appendix, and acutely angulated at the floor of the pelvis. The adhesions were separated, the ileum freed and additional drainage of the bowel established by a tube in the proximal limb. The patient left the table exhausted and died in twelve hours. The first misfortune was the failure to establish the diagnosis of obstruction earlier, the second was the choice of an exploration rather than ileostomy to relieve it.

Each of these cases presented at the time of primary operation a degree of peritonitis sufficient to warrant a grave prognosis, but in each case it was arrested and the toxemia controlled, promising recovery until the obstruction introduced a new element, fatal in two cases, fortunately relieved in one.

The mechanism of this complication is apparently clear. Studies on the cadaver and of bismuth radiographs indicate that in the majority of cases the terminal coils of the ileum occupy the pelvis, sharing its cavity with the pelvic colon. In many cases, especially if the colon and other pelvic viscera are distended, the ileum is largely forced out of the pelvis, but probably it is the rule that if traced backward from the cecum it will be found to run downward against the right aspect of the pelvic wall to its floor, if the length of the mesentery permits, and then partially fills the pelvis or is pushed upward by the other pelvic viscera, thus presenting a potential kink at its lowest excursion. If an acutely inflamed appendix lying in a mass of inflammatory exudate along the pelvic wall is now removed, there remains a bed of adhesive plastic exudate against which lies this terminal limb of ileum. Evidently the conditions are ideal for the formation of prompt and firm adhesions, especially if the usual postoperative paresis of the intestines is marked and prolonged, as in the case of a diffuse peritonitis. Probably in the majority of cases no definite harm results, or nothing worse than some degree of chronic ileostasis, but more rarely, owing perhaps to the crowding out of the pelvis of the rest of the ileum, an acute angulation occurs at the lowest fixed point, which, with condensation of the inflammatory adhesions, affords obstruction to the passage of the gas; then ensues dilatation, which in turn results in more kinking and a valve-like obstruction, which becomes fixed by the agglutination of congested serous surfaces.

It is not clear what means may be employed to prevent the occurrence of this series of events. It may be wise to encourage a knuckle of pelvic colon to lie against the bed of the appendix, or to place there a coil of ileum somewhat distant from the cecum to prevent the rigid angulation described above. The corner of a very long omentum might be adjusted there, probably at some risk of the formation of dangerous bands. It is probable that a drain covered with or composed solely of rubber tissue and flattened rather than rounded, adjusted over the appendix bed so that it intervenes between the pelvic wall and the ileum, may prove effective, since the exudative reaction occurring beneath it is less likely, after its withdrawal, to cause adhesions. Since the occurrence of the last case noted above, the writer has carried out this manoeuvre in a number of cases, approximately twelve, in which the conditions at the primary operation corresponded closely with those above described, and has not observed an instance of postoperative obstruction of this character. The evidence is too limited to be of much value.

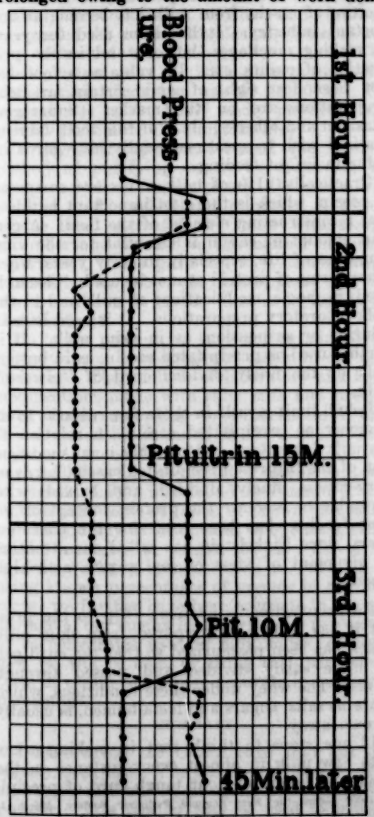
The therapeutic suggestion gained by a consideration of these cases is not new, but affords a clean-cut plan of procedure in a limited group of very grave cases. It may be summarized as follows: In acute pelvic appendicitis, where the inflamed or gangrenous appendix has been torn from its bed on the lateral pelvic wall, from brim to floor, the occurrence of the earliest symptoms of acute intestinal stasis, especially if appearing after an interval of a few days of normal convalescence, should lead to the assumption that there exists an acute angulation of the terminal ileum at the pelvic floor. After the elimination of ill-placed drains as a factor, at the earliest justifiable moment, the attack should be directed at that point by a secondary operation. If the patient's condition does not justify this, a better than forlorn hope is offered by ileostomy.

REPORT ON THE USE OF PITUITARY EXTRACT (PITUITRIN) IN SURGICAL SHOCK.

BY CHARLES A. HILL, M.D.,
Attending Surgeon, Presbyterian Hospital, Pittsburg, Pa.

SINCE the year 1784, when John Hunter first described "Shock," up to the present time, many theories as to its causation have been advanced, as well as many methods of treatment, both prophylactic, and otherwise. It is not my intention in this paper to enter into a discussion of the etiology of this condition, which has been so ably done by Crile ("Surgical Shock," 1899), but rather to outline briefly a method of treatment that has proven satisfactory in my hands. Surgical shock, according to Crile, may be defined as "low blood pressure." The symptoms of post-operative shock are similar to those following injury and consist of: (1) marked pallor and coldness of exposed mucous membrane with some slight evidence of cyanosis (2) small, irregular and rapid pulse; (3) a characteristic apathetic appearance of the patient. The length of time of operation has a distinct bearing, the more prolonged the operation the more likely shock symptoms will develop and is, according to some writers, more frequent after operation upon the viscera in the upper half of the abdomen. The essential factor, as Crile has shown, is the exhaustion of the vasomotor centers, resulting in the blood collecting in the splanchnic area and a resultant fall in general blood pressure. The heart is affected secondarily by the change in blood pressure, the lower pressure causing a venous stasis affecting the large, venous trunks and thereby interfering with its action. In studying the treatment of this condition it became evident that any drug that would cause a rise in blood pressure that would be sustained for some time after operation, would eliminate to a great extent the danger of shock symptoms developing. It was my privilege to do considerable clinical experimental work with pituitrin (Pituitary Extract), and the effect

noted upon the blood pressure of patients to whom this product was given before leaving the operating room was marked. I have inserted below a copy of an anesthesia slip, taken at random, the tracings on which show the characteristic action of this drug. You will note that at the time of beginning operation the blood pressure ran about 105, dropping to 80 a short time after the belly was opened and holding at this point, approximately, throughout the time of operation. My procedure is to give the pituitrin before the patient leaves the table and usually before closure of the abdominal wound is made. After the first injection in this case the blood pressure increased to 85 and then to 90 within a short time. At this point a second injection of 10 minims was given and forty-five minutes later the pressure registered 110. The pulse rate dropped in proportion to the increase in blood pressure. No evidence of shock was noted, although the operation was somewhat prolonged owing to the amount of work done.



THE PRESBYTERIAN HOSPITAL.

ANESTHESIA SLIP.

Name: Mrs. Martha Kenney.
No.:
Date: September 28, 1910.
Ward: Female.
Age: Twenty-five.
Diagnosis: Chronic endometritis, lacerated cervix, adherent appendix, prolapse right ovary, cyst left ovary, retroflexion of uterus.
Operation: Currettage, trachelorrhaphy, appendectomy, oophorectomy (left complete, partial right), retro-peritoneal shortening (round ligaments).
Anesthetic and amount: 7½ oz.
Heart: Before, O.K. After, O.K.
Urine:
Tissue removed: Left ovary and part of right. Appendix and cervix.
Pathology seen by Operator:
Suture Material Used in Closure of Abdomen: 1. Peritoneum. 2. Muscle and fascia. 3. Subcutaneous skin.
Dressing:
No. of Drains: 1 uterine (rubber tube).
Operator: Hill
Assistants: Allison, Armstrong.
Anesthetist: Bruner.
Infusion:
Irrigation:
Enema:
Stimulants: Pituitrin.

Rockey,
Operating nurse signature.

REMARKS:

Blood supply to right ovary, ligated.

The above chart is but one of the many that could be given, but as it is my purpose to simply outline the treatment, the following instructions that are attached to each case record of an operative case for the guidance of the attending nurse will perhaps explain it best.

1. All patients before leaving the operating room shall receive pituitrin, 15 minims, hypodermatically.

2. After patient is returned to bed and only after recovery from anesthesia, the following rules must be followed unless otherwise ordered:—

1. Fowler position—15 inches elevation head of bed.

2. Enteroclysis. Use glass nozzle with two or more openings in same.

3. Hypodermics of pituitrin, 15 minims every three hours for four (4) doses.

4. Ice caps to abdomen.

5. Sips of hot water and hot tea shall be given. No cracked ice or cold water for first twelve hours.

6. Hypodermics of morphia, grain 1-6, et physostigma, grain 1-75, for pain or restlessness, to be repeated in three hours if necessary.

7. If necessary to take blood pressure and same is below normal continue pituitrin and add

hypodermics of camphorated oil, grains 2, every three hours. If blood pressure is high discontinue pituitrin.

8. Catheterize (if necessary) only every eight hours.

9. Liquids, consisting of water, coffee, tea, orange juice, meat juice, broths, may be given before first bowel movement, after which milk, soft diet may be allowed.

10. The bowels should be moved (unless contraindicated) on third day by castor oil, 1 oz., followed, if necessary, by milk and molasses enema. After operation on perineum or bowel cases, no enemas or cathartics shall be given unless ordered.

11. After operation on round and broad ligaments, patients shall not be allowed to turn on side until ordered to do so; but pillows may be placed under each side at different times. All other cases may be turned and change of position often is advisable.

12. After operation on perineum, patient's limbs shall be kept in close apposition and the parts shall be irrigated with boracic solution after each urination. The patient must be instructed not to separate limbs.

During the past two and one-half years and embracing about eight hundred abdominal operations where pituitrin has been used, I have not had in any instance a symptom of shock develop except in two or three cases a condition simulating "heart exhaustion" was noted. Whether or not this apparent exhaustion was due to over-stimulation is a question. Many other factors may have been responsible. These symptoms were only transient, the patient responding to stimulation after the administration of pituitrin was discontinued, and in each instance the patient made an uneventful recovery.

To again quote from Crile: "Surgical shock then is mainly due to a vasomotor impairment or break down. The cardiac and the respiratory factors may be considered of importance. However, the main effect is on the vasomotor mechanism. If the foregoing be true it will be seen how much more important is prevention than treatment. Prevention of shock may best be accomplished by taking into account all the known physiologic functions of every tissue and organ of the body in a way that would suggest itself to every practical surgeon. While the cause may be local, the treatment must be general."

Another point I wish to mention is the very happy result noted by several investigators as well as myself,—the elimination of gas from the alimentary tract. It would appear that pituitrin has a very marked effect upon the muscular coat of the intestine, causing an increase of peristalsis and facilitating the passage of gas.

Birdwell (*Clinical Journal*, September, 1911), in an attempt to solve the problem of overcoming the temporary paralysis due to exposure of the intestines following laparotomies, tried the injection of Pituitary Extract in a series of twenty uncomplicated cases. He found the results very gratifying, the drug having a very marked effect upon the muscular coat of the intestines. None of the patients so treated complained of flatulence and the early passage of flatus in each case was a marked feature as a rule. Doses of 0.5 to 1 c.c. were injected intramuscularly for one to three days, or until results were obtained.

ARTIFICIALLY DRIED CASEIN.—PRELIMINARY INVESTIGATION.*

BY HENRY I. BOWDITCH, M.D., BOSTON,
Physician in Charge Massachusetts Babies' Hospital.

CASEIN in the manufacture of cheese has held an important place in human diet for many years. It has also always been of important service to the growing child through the ingestion of milk. In recent years many important technical uses have developed, so that the manufacture of casein from milk has become an important industry. It has been used for years in making mucilages, buttons and in the production of paints, etc. Its value as a food has not been lost sight of and certain artificial preparations are on the market (Sanatogen, Plasmon and others). It is of this food value of casein I wish to speak, especially as regards its value in infant feeding.

Practically 21% of milk solids are composed of casein, which is the most important building and reconstructing element of the food. A certain amount of casein is essential for the vital functions of life, especially in early years, when other forms of proteid cannot be used. Casein is used in home modifications of milk and in the milk laboratory preparations. It is used here in solution or suspension, as in skim milk. It is further used as precipitated casein, as in buttermilk or the finely divided curd of "eiweiss" milk.

I shall limit myself in these few remarks to its economy as precipitated casein, in relation to the milk laboratory and possibly home modification of the future. Precipitated casein, curds or para-casein, finely divided and mixed with formulae to increase the protein content of infant feeding, has been used for the past few years, since Finkelstein has called our attention to his point of view of low sugars and high casein.

Its preparation is arduous. Up to the present it has had to be prepared from skim milk which has been pasteurized so that the curd can be more easily divided and passed through sieves. The whey under these conditions, which contains salts, sugars and lactalbumen, is usually thrown away.

If one stops to think that in making whey with raw milk in almost every instance in the home and laboratory our tough curd of precipi-

* Read before the New England Pediatric Society, March 1, 1913.

tated casein (curds) has been discarded. This is true of such laboratories as H. P. Hood and Company, D. Whiting and Company, and the Walker-Gordon Laboratory of Boston. In each case we throw away something valuable, approximately one-half of our food value of skim milk, which means a loss of 2½ cents (retail) on each quart of milk used. As an example, it is practically $1.00 to $1.25 per day where 40 to 50 quarts of milk are used, a total loss of $300 to $400 a year.

I have attempted to save this loss by keeping my curds obtained in making whey. I *first* tried the easiest method of drying the curd; the casein precipitated by rennet was squeezed free of whey, run through a meat chopper, washed, drained and dried by direct heat and afterwards again ground. This produced a tough, dark yellow residue, which proved to be not casein but a product of burnt casein in the presence of water, impossible of digestion. *Secondly*, I tried to free my curd from water, it was chopped, washed, ground in a mortar and drained. I extracted the water with alcohol, decanted and then extracted the alcohol with ether. This dried product gave me 90% pure casein. The temperature of drying was 40 to 50° C. The product was white, fairly easily powdered and ground (Insoluble Calcium Caseate).

In the *third* experiment I used the common method of purifying casein by dissolving the curd in an alkali, reprecipitated the casein with a dilute acid, washed and combined it with a soluble base, extracted the water with alcohol and ether and dried it in the manner of second experiment. This gave me 95% casein which was soluble in water. It thus appears that our casein curd can be saved. Can it be used in infant feeding?

Up to the present we have not questioned the proportions or percentages of casein in our milk formulae. The analysis of laboratory and home modifications made with skim milk and precipitated casein according to Finkelstein, I have found varied by as much as 15 to 20%. Food supposed to contain 2% casein, by Keldahl, gave 1.70%, while precipitated casein, supposed to contain 4.5%, was found to contain 3.99%. With a pure form of casein of known percentage we can add any exact amount to our food, either in the insoluble or soluble forms. Up to the present we have been accurate in our fats by using known percentages of creams in our mixtures; we further have been accurate in the percentage of our sugars by knowing the percentage of carbohydrates used in milk sugar, etc., and now we will be able, by using this dried stable form of casein to be more accurate in our casein percentage.

SUMMARY.

I have saved the casein curd that has previously been lost. The casein curd can be dried and made into stable, pure, soluble or insoluble powder. This powder may be used to increase the accuracy of our administration of casein. Cases are at present being fed on the basis of exact casein percentage, using soluble and insoluble form, and will be reported at a later date.

In closing I wish to thank Mr. A. W. Bosworth, of Geneva Agricultural Station and Mr. Frederic W. Howe of the Walker-Gordon Laboratory for their interest, suggestions and material assistance.

Clinical Department.

TRANSDUODENAL CHOLEDOCHOTOMY

BY J. C. HUBBARD, M.D.,

Assistant Surgeon, Boston City Hospital,
Consulting Surgeon, Leonard Morse Hospital, Natick,
Assistant in Surgery, Harvard Medical School.

D. C. A married woman of thirty-eight entered the Second Medical Service of the City Hospital January 8, 1913. The history was as follows:

She had had children's diseases, diphtheria at seven years, typhoid at eighteen years, tonsillitis at thirty-two years, influenza at thirty years.

Eleven days before entrance she was attacked by a sudden pain in the epigastrium. By the next morning the pain had disappeared, but returned again that night and has persisted since. At entrance her abdomen was sore and the pain was sometimes referred along the spine and even up under the shoulder blades, especially the right, never down to the thigh. Pain usually came on about fifteen minutes after eating, and was followed by vomiting which afforded partial relief. The vomitus was thin yellow and bitter. It never contained any blood, and there was no blood in the stools, She had never been jaundiced. Had been in bed for three days. Had taken little food.

On examination the important points were as follows: There was bile in the stools. Urine contained slightest possible trace of albumen. The sediment was composed of leukocytes, vaginal and bladder cells. The cells were bile stained. The skin was very sallow, but was not definitely jaundiced.

On January 9, the day after entrance jaundice was distinctly noticed. She had considerable pain and tenderness in the epigastrium.

Jan. 11, it was noticed that the stools contained bile.

Jan. 12, the stools were clay colored.

She was seen by me on the medical service in consultation and was transferred to the surgical service. The examination at that time was unimportant, except that the patient was deeply jaundiced, and the abdomen was tender and gave a sense of resistance in the region of the gall-bladder.

Operation, January 13. Incision over the gall-bladder through the rectus muscle. A much thickened gall-bladder presented itself immediately. Numerous adhesions between the lower portion of the gall-bladder and the intestines were broken up. Cystic duct and common duct could be felt as a thickened tube running down to the intestines. No stones felt in them. Gall-bladder opened. Wall very much thickened. Contained a little fluid, very little bile and no stones. A probe could be passed up toward the liver. No stones felt. After a long

search a small stone could be felt lying at the duodenal end of the common duct. Impossible to push it out. Anterior surface of the duodenum opened for about three quarters of an inch. Mucous membrane of the posterior part of the duodenum over the stone incised and stone pushed out. Incision in the anterior wall of the duodenum closed with cat-gut sutures and a second layer of pagenstecker burying the cat-gut. Rubber tube tied into the gall-bladder, and a wick below the gall-bladder left in. Abdominal wall closed tight in layers except for the tube and wick.

Following the operation the patient made a satisfactory convalescence. The wick was removed on Jan. 13, and the tube taken out on Jan. 24. On Jan. 11 there was practically no discharge from the wound and the patient was sent home in excellent condition.

In recent times the literature of this subject has been covered first by Hancock (*Annals of Surgery*, January, 1906) who was able to get together a total of sixty cases where a stone was removed by the duodenal route.

Cornell, writing in the *Wisconsin Medical Journal*, in April, 1908, increases the number to eighty-six. Since the publication of Cornell's article I have been able to find in the literature at hand the following isolated cases which have been operated upon. MacLean (*Annals of Surgery*, 1909, page 1273), one; Smythe (*Journal Tennessee State Medical Association*, November, 1910), one; Fobes (*Inter-State Medical Journal*, February, 1912), one; Meyer (*Annals of Surgery*, February, 1912), one; Williams (*Annals of Surgery*, October, 1912), one complicated case; Brewer, *Surgery, Gynecology and Obstetrics*, 1912, Vol. 14, page 437), one, a complicated case.

These, with the one reported above, make ninety-four cases.

The anatomy of the common bile duct is described by Testut (*Traite D'Anatomie Humaine*, 1912) as follows: Its length varies ordinarily from six to eight centimeters. The portion above the duodenum is ten to thirty centimeters long, the retroduodenal twenty to twenty-five, the pancreatic twenty to twenty-five, and the intraparietal ten to twelve millimeters. The intraparietal portion is that part which lies within the thickness of the duodenal wall. The common duct perforates the second portion of the duodenum obliquely. It passes first through the muscular layer, then the cellular layer and empties into a little reservoir (ampulla of Vater), in common with the duct of the pancreas. From this description of the ordinary anatomy of the common duct it will be seen that it is possible for a stone to become lodged in the duodenal wall before it reaches the ampulla. One method of reaching a stone in such a position is to open the anterior wall of the duodenum and remove the stone from within the lumen of the duodenum just as though the stone lay in the ampulla. After removal, some men suture the edges of the incision in the posterior wall of the duodenum to the duct as it lies in the intestinal wall. Kehr calls such an operation internal choledochoduodenostomy. Kehr reports, 1905, eight internal choledochoduodenostomies, making one hundred and two cases in which a stone was removed from the common duct by opening the duodenum.

I can see no reason why such cases should not be included in the cases of transduodenal choledochotomy, though none of the reviewers of this subject have done so. The difference between the two operations is so slight that it is not worth considering.

Judging from surgical cases, the frequency of a stone in the ampulla of Vater is slight.

Kehr, 1905, reports one thousand gall-stone cases in which he did two transduodenal choledochotomies and eight internal choledochoduodenostomies. In 1908 he reports three hundred and twelve gall-stone laparotomies, in which he did one transduodenal choledochotomy.

In the article written by Cornell the Mayos, in a personal communication, report that in over two thousand operations upon the gall-bladder or ducts done by them, only four times was a transduodenal choledochotomy necessary.

Kocher and Matte (*Arch. Klin. Chir.*, 1906, Vol. 81) in a hundred cases have done the operation but twice.

It seems to me that such surgical statistics are somewhat unreliable, as a stone in the ampulla of Vater is easily overlooked. There is a number of cases in the literature of such an occurrence where a stone in this position was missed at operation and found only at autopsy, and such a case follows.

I thought it more reliable to review the autopsies at the City Hospital done for known and unsuspected gall-stones. Of such cases there were 116. Among them were five cases where a stone was found in the ampulla. Possibly had some of these five cases come to operation the stone might have been removed by manipulation, making a typical transduodenal choledochotomy unnecessary.

In some cases there is a definite statement that the stone is impacted. The review of this series of autopsies gives a higher percentage of cases of stone in the ampulla than one would suspect from the surgical statistics.

At present there is no method of making an absolute diagnosis of the presence of a stone in the ampulla. Some of the cases have been jaundiced, some not, depending on the degree of obstruction.

Some of the surgeons writing on this subject have described at some length the technic. It seems to me, however, that there is nothing important in the technic more than what anyone used to surgery would naturally carry out. The important point is to get the fingers of the left hand under the duodenum behind the stone and keep them there until the stone has been removed.

The difficulties of the operation are those of

an ordinary gall-stone operation, depending largely on the amount of adipose tissue of the patient, which determines the accessibility of the common duct and the duodenum.

One of the arguments against the operation, advanced some years ago, was the fear of a duodenal fistula. This occurred twice in the series collected by Cornell. At present, however, the technic of intestinal surgery has advanced so much that such an occurrence should occur very rarely in uncomplicated cases.

The mortality of the operation is slight. Adding those cases collected in this paper to the series gathered by Cornell, the number of cases operated upon is 94; recoveries are 82; deaths are 12. If the internal choledochoduodenostomies of Kehr are added, the recoveries are increased by 8, the number of deaths remaining the same.

Appended are extracts from the autopsies at the Boston City Hospital, where stones were found in the ampulla:—

Autopsy I. G. Female, fourty-two years, married (II Surgical, vol. 540, p. 262). Six children. About a year has had digestive disturbances in the abdomen after eating. Past year has had occasional attacks of vomiting. Past three to four weeks increase of pain with more vomiting, and chills.

P. E. Slightly jaundiced, temperature 101; abdomen upper region rigid.

Operation. Oct. 25, 1909. Gall-bladder distended, containing muco-purulent material.

Discharged Nov. 17, in good condition, sinus draining. Entered again Dec. 20, 1909. (II Surgical, vol. 544, p. 120.) Since discharge has not improved much; has had three attacks of colic beginning with severe pain in the upper abdomen, reaching through to back and up towards the shoulders; vomiting, chills and fever. Last attack last night.

P. E. Not jaundiced, biliary sinus. Condition considered too poor for operation. Failed and died Dec. 30.

Autopsy, 09-194. (II Surgical.) Gall-bladder adherent to abdominal wall; wall thickened all through; ducts dilated. On opening the duodenum, there is seen on the posterior wall of its middle portion, an oval elevation 2-1-1 cm., which stands out in the lumen of the duodenum. This contains an extremely hard and movable body. Pressure on the bile passages causes bile to flow from a small papilla upon this projection and also from a very minute papilla, slightly above 1.5 cm. to the left of the mass. Evidences of pneumonia.

Autopsy II. M. Female, fifty years. (II Surgical, vol. 480, p. 128.) Entered Feb. 20, 1907. Family and previous histories not attainable. Physician says patient has been sick about a month.

P. E. Very fat; conjunctiva yellow. Died day of entrance. Autopsy 07-66.

Numerous dense adhesions unite the gall-bladder and the tissues about the common duct to the duodenum and the large intestines in this region.

Liver abscess cavities.

Gall-bladder and common duct firmly bound down to the tissues about them. Upon pressure of the common bile duct, bile escaped into the duodenum. Wall of gall-bladder, which is small, is markedly thickened throughout. The common duct is considerably distended. Its walls are thickened and near the ampulla of Vater there is a gall-stone 3 cm. in diameter. Numerous small stones scattered throughout the common duct, three facetted firm black stones. Evidences of pneumonia and acute suppurative cholangitis.

Autopsy III. E. Female, 43 years. Entered Aug. 31, 1909. (Vol. 144, p. 172.) Seven years ago typhoid (?) after that noticed that she was becoming jaundiced, which has continued to a greater or less extent up to the present time; frequent attacks of indigestion at intervals of a week to a month; has bilious attacks which come on with a chill lasting one-half hour, followed by fever. Says at first, feeling of soreness all over, slight cough, flatulence, nausea and vomiting, loss of appetite, swollen feet, ankles and eyelids, slight constipation, clay colored stools ending in diarrhea; increase in jaundice after each attack.

P. E. Deeply jaundiced; abdomen distended; slight dullness in flanks, changing on change of position. Patient gradually failed and died on Sept. 7.

Autopsy, 99-147. Gall-stone, 18-15-12 cm., in diverticulum of Vater; wall of common duct thickened; gall-bladder much contracted. Acute general peritonitis.

Autopsy IV. C. Female, 54 years, married. (I. Med., vol. 616, p. 26. Oct. 11, 1906) has had occasional pain, fever and chills, but no especial sickness; one child, three miscarriages. Has not been feeling well for some time; headache and shortness of breath with cough.

P. E. Signs of pneumonia, temperature 102, pulse 110, temperature came down; general condition fair; died on the twenty-sixth; vomiting a marked feature just before death; abdomen distended.

Autopsy, 09-81. Vol. 616, p. 28. Oct. 27, 1906, gall-bladder is distended with slight yellowish bile. At ampulla of Vater is impacted a rounded gall-stone, 9 cm. in diameter; two others are located at a point in the common duct a few cm. further back; by great pressure a small amount of bile can be forced by these concretions. Broncho-pneumonia.

Autopsy V. S. Female, 37 years. (Vol. 149, p. 260.) Six attacks like the present in the last twelve years. One child. Three weeks ago became jaundiced, felt pain in right side and back of head, vomited.

P. E. Jaundiced skin and conjunctivae, examination of abdomen negative, wrist drop, incontinence. Became worse, and died on the 24th.

Diagnosis, toxic paralysis.

Autopsy, 07-26. Jan. 24, 1907. Liver, large and bile ducts are distended and in several of them are gall-stones, all of which show facetted edges. In one instance the stone is situated in the central part of the liver substance. Gall-bladder 4 cm., 2-5 cm. walls are thickened. The ampulla of Vater is patent. Two large stones are situated in the common duct just at the mouth of the ampulla of Vater. Several of varying sizes are found in the distended common duct and hepatic duct. The demarcation between the contracted and thickened gall-bladder and the greatly dilated common duct is very definite.

RECURRENT VARIOLA.

BY EDMOND P. CODY, M.D.,
City Physician, New Bedford, Mass.

A SECOND attack of smallpox is of such rarity as to deserve recording. In the available works on the subject, few references are made to it. I can find but the following:—

According to Marson,[1] during the one hundred and nineteen years since the founding of the London Smallpox Hospital not a single instance has been recorded of a patient being admitted with smallpox a second time. Although Baumler,[2] "In the smallpox hospital in London, from the years 1836-1851, among 5797 cases, 47 cases occurred, therefore, less than one per cent. of second attacks."

MacCombie[3] writes, "I have not seen an attack of smallpox in any person who bore unmistakable evidence of having had smallpox." Immermann,[4] "Rarest of all, without doubt, are the true relapses, but such are really now and then observed. Somewhat more frequently, though rarely enough, second attacks occur, between which and the first attack (experienced in youth) a series of decades usually intervenes. Aitken[5] quotes a case reported by Roupel of three attacks, a lady of M. Guinet, who had it five times; a case of Matson of seven attacks; and one by Baring, a surgeon attacked on every attendance upon a case.

All agree that a second attack is mild. The classical case of Louis XV of France, who had an attack of the discrete form at the age of 14 and succumbed to confluent smallpox at 64, is the familiar exception.

B. P. F., age 50; had discrete smallpox at age of four; in proof of which many typical scars are to be seen distributed generally over the trunk. When mustered into the Federal service as a member of the local company Massachusetts Coast Artillery, at the beginning of the Spanish War, the medical officers verified his statement on physical examination and exempted him from the customary vaccination. Because of the presumed immunity by his early attack, he was employed by the Board of Health as general utility man at the smallpox hospital last June, for a short time while one patient was there.

March 15 the hospital was reopened as smallpox again appeared, and F. resumed work, transferring patients from their homes, destroying infected bedding, clothing, etc., mingling freely with the patients, who numbered eighteen.

March 30 he complained of headache, backache, and chilliness which aroused suspicion of possible second attack. After a few doses of aspirin he resumed work, feeling perfectly well.

April 4 he awoke and found a general maculopapular eruption on his body. Similar lesions were seen on the soft-palate; the varioloid ran a rapid course without incident.

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[1] Corlett: The Acute Infectious Exanthemata.
[2] Wilson: Modern Clinical Medicine, Infectious Diseases.
[3] Allbutt: A System of Medicine. Vol. iii.
[4] Nothnagel: Encyclopedia of Practical Medicine.
[5] Whittaker: American Text-Book of Theory and Practice of Medicine. Vol. ii.

Medical Progress.

REPORT ON PROGRESS IN PEDIATRICS. BOILED MILK IN INFANT FEEDING.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

THE effect of the heating of cows' milk on its nutritive value as a food for infants has been a matter of considerable interest to American pediatrists for some years. Two important articles on this subject have recently appeared. In one, Lane-Claypon[1] sums up the available data on the boiling of milk and compares the results in a considerable number of babies, part of whom were fed on breastmilk and part on boiled cows' milk. In the other, Brennemann[2] reports a comparative study of the digestibility of raw and boiled cows' milk, based on the results obtained in a young adult, who was able to empty his stomach at will. His findings are most interesting and throw much new light on the subject.

Janet E. Lane-Claypon, in her Report to the Local Government Board upon the Available Data with regard to the Value of Boiled Milk as a Food for Infants and Young Animals, summarizes the experimental evidence as to the comparative nutritive value of raw and boiled milk of the same and of a foreign species as follows:

I. There is no evidence to show that boiled cows' milk is markedly inferior to raw cows' milk as a food for young calves, at any rate after the first two days of life.

II. The salt content of the milk is of great importance.

III. If young animals are fed upon the milk of a suitable foreign species they appear to thrive somewhat better if the milk is given boiled than if given raw, the only exception being in the case of germ-free milk.

IV. In those cases in which the health of the animals was inquired into after the cessation of the experiment, no difference could be detected in the animals fed by different methods of artificial feeding.

V. All the animals fed by different methods of artificial feeding were inferior to the breast-fed animals, both at the time of the experiment and afterwards.

She points out that the clinical evidence as to the relative nutritive value of raw and boiled milk as a food for infants is rather scanty, that most of the available evidence is from sick rather than well babies, that details as to the source, quality and preparation of the milk are often lacking, that most of the series of cases have been small and that the observations have usually been of short duration.

She concludes from her study of the literature and from the unpublished results of Prof. Theimich of Magdeburg that the data available are insufficient to justify any definite conclusions as to the comparative value of raw and boiled human milk as a food for infants. She calls attention to the fact, however, that the

great variety in the chemical composition of the milks of different species justifies the assumption that the milk of each is especially adapted for the young of that species; and that the slight changes in the chemical composition produced by boiling might be expected, therefore, to have more effect on nutrition when the milk is of the same species than when of the less well adjusted milk of a foreign species. The evidence is sufficient to show, however, that many babies thrive well on boiled human milk. She concludes, therefore, that either the changes produced by boiling are insignificant or the fine adjustment of the milk to the species is not as important as usually supposed.

After reviewing the clinical evidence in regard to infants fed upon raw and boiled milk of a foreign species, she concludes that, if children healthy or not markedly atrophic are considered, no great difference can be detected between the nutritive values of raw and boiled milk, provided that the quality of the milk is the same. If markedly atrophic or sick children are considered, there appears to be a good deal of idiosyncrasy, some doing well only upon the one form of food and some only upon the other. The value of much of the clinical work on this subject is very much reduced by the absence of control cases and in this respect the earlier work is especially deficient, as also in regard to the details of the milk given.

She calls attention to the fact that the metabolism experiments which have been done in this connection show nothing as to the comparative value of raw and boiled milk as a whole, but merely as to the nutritive value of individual elements of the milk. She then reviews the stock literature as to the influence of the boiling of milk on the production of scurvy and rickets and wisely refrains from drawing conclusions.

She then reports her own study of a series of healthy babies at the Infants' Consultation of the Naunyn Strasse in Berlin. The babies were divided into two classes, those fed entirely or almost entirely on the breast and those fed entirely on boiled milk. One hundred and seventy of the first and 154 of the second series were under observation over four months. An examination of the babies still in attendance at the end of the first year showed that 30 of 116 of the first series and 31 of 120 of the second showed signs of rickets. There was a significant difference between the average weight of infants fed upon the breast and of those fed upon boiled cows' milk, in favor of the former. An analysis of the other possible factors showed that the most important factor in the production of this result was the method of feeding. This difference was greatest in the early weeks and months. The babies in the two series doubled their birth weight at about the same time.

These experiments unfortunately show nothing as to the relative nutritive value of raw and cows' milk in infant feeding. The results obtained in these infants fed on boiled cows' milk were, however, extremely favorable, and as the author says, "would scarcely be expected to be surpassed had raw cows' milk been used." She rightly, however, attributes the excellence of the results in large measure to the care and supervision exercised at and through the Consultation.

Brennemann, in his paper entitled "An Experimental Study of Milk Coagulation in the Stomach, Together with Clinical Observations on the Use of Raw and Boiled Milk" states that the housewife and dairyman are practically familiar with the fact that boiled milk forms a different curd from raw milk. Pediatrists have, however, quite ignored the fact that raw and boiled milk are not identical foods. If they have compared them at all, it has been rather from the bacteriological than from the physiological point of view. Boiled cows' milk forms in the stomach, as does human milk, nearly a liquid food, while raw cows' milk is not even a soft food, but a solid food, so solid, in fact, that unless modified in some way and given in careful moderation it may form hard masses that pass undigested throughout the whole alimentary tract and appear as hard curds in the stools.

He then calls attention to the fact that Talbot demonstrated that these hard, tough curds were casein curds in contradistinction to the small soft white curds formed from fat. This was denied by the Germans, who said that there were no such things as casein curds. He also shows that the explanation of this discrepancy was that Talbot and other American clinicians used raw milk mixtures, while the Germans used boiled milk mixtures. The Germans, like the Americans, found these curds as soon as they fed raw milk.

Brennemann and Ibrahim, working independently, offered as an explanation for the invariable occurrence of these hard curds when enough raw milk was fed, that, while boiled milk formed fine, soft curds in the stomach, raw milk formed large, hard curds that under given conditions would be passed through the whole digestive tract before they were completely digested. The evidence for this explanation is threefold:

1. Experiments in vitro. When rennin is added to raw milk in a beaker, at a proper temperature, the milk will quickly form a dense, hard coagulum that separates rapidly and completely from the whey. Boiled milk under the same conditions coagulates more slowly, separates less completely and forms a soft, finely divisible curd that differs but little from a thick liquid.

2. The clinical observation that babies fed with raw cows' milk will at times vomit hard, rubbery curds of enormous size.

3. When raw milk is injected into the rectum of babies and retained for a time, the next bowel movement will contain typical hard curds indistinguishable from those that occur when

raw milk is fed by mouth. If the milk is returned in a short time the curds are soft and white. If after four or five hours, they are smaller and harder, somewhat changed in color and rounded or bean-shaped, an exact parallel to what occurs when these curds are present clinically. When rushed through rapidly, as in diarrhea, they resemble more nearly a fresh milk coagulum. The longer they stay in the bowel the harder, more rounded and more stained they become. When boiled milk is injected in the same way, no such typical hard curds are formed.

He then attempted to explain the processes going on in the stomach that produced these hard curds, it being impossible to be certain that beaker experiments represented what took place in the stomach. Czerny maintained, for example, that the constant motion of the stomach prevents the formation of large, hard curds. The fact that large and unusually hard curds are formed from raw milk, when milk and rennin are constantly stirred or shaken in a glass shows conclusively, however, that motion does not prevent the formation of large hard curds. In fact, the whole curd content of the beaker is often collected in one hard mass.

The only way to determine whether there are other conditions present in the stomach that cause the milk to act differently from that in the beaker is by a study of what goes on in the stomach itself. Such a study is very difficult, however, because the stomach tube is, on account of the size of the curds, worse than useless. He was, however, fortunate enough to find a healthy young adult with normal digestion and normal stomach contents, who could promptly and with but little effort empty his stomach by the simple method of passing his finger into his throat. Forty experiments were made in this young man with raw and boiled milk and with various "milk modifiers." While these observations were made on the adult and only such application can be made to the infant as known identical, physiological conditions warrant, nevertheless, they can at least form a working basis for clinical observation in the infant.

He used certified milk, raw or boiled actively for five minutes, both being taken at 95°F. on an empty stomach in five minutes. The milk was usually whole, but sometimes fat-free. The contents of the stomach were vomited at various intervals. The curds from raw milk were hard and rubbery, always large, sometimes enormous. Some of them were four or five inches long and one or two inches thick, one being so large that it could not be vomited and had to be re-swallowed. The curds from boiled milk were small and relatively soft. The separation from the whey was complete with raw milk, incomplete with boiled milk. The whey left the stomach much more quickly when raw milk was used than when boiled milk was used. Complete emptying of the stomach occurred much later with raw than with boiled milk. The results obtained with pasteurized milk were midway between those from raw and boiled milk, but nearer to raw than to boiled, especially as regards the separation of the whey.

Raw milk was then taken more slowly, 20 to 45 minutes being occupied, in order to more nearly approximate the conditions in infancy. No curds were returned when 30 minutes or longer were taken in sipping the milk, simply whey. A few small curds were obtained when only 20 minutes was taken. The explanation is that when milk is taken slowly a small number of curds, too large to be returned, are formed. Laboratory experiments corroborate these unexpected findings, showing that fresh curds tend to coalesce as fast as they are formed.

The dilution of raw milk with an equal or greater amount of water resulted in the formation of smaller and more spongy curds. Dilutions with an equal amount of barley water reduced the size of the curds to that of peas or smaller. Sodium citrate in the proportion of two grains to the ounce prevented the formation of curds, and in smaller amounts reduced the size of the curds materially. Bicarbonate of soda had the same effect as sodium citrate. Five per cent. and ten per cent. of lime water did not prevent the formation of curds, which were about midway in size between those from raw and boiled milk, but made them much softer.

Brennemann believes that it is not unfair to assume that, as all the ferments of the adult are present and active in the stomach of the baby, the same relative reactions take place there as in the adult. He believes that there are certain symptoms which are common with the use of raw milk and which disappear when the milk is boiled. These are:

1. The hard or tough curds of infants' stools. These, he states, and quotes Ibrahim in corroboration, can be produced in every infant by giving it enough raw milk. They will promptly disappear when the milk is boiled. These curds are nearly always accompanied by other evidences of indigestion, especially diarrhea. Whether they are the result of some other factor in raw milk that produces dyspeptic symptoms or whether they themselves mechanically produce these symptoms remains to be demonstrated.

2. Diarrhea and dyspepsia. The improvement when milk is boiled suggests that the proverbial constipation from boiled milk may be due to the fact that boiled milk is more readily digested and more completely assimilated than raw milk.

3. Vomiting.

4. Colic and discomfort. These are often relieved when the milk is boiled.

The fact that boiled and citrated milk are peculiarly alike in their effect on digestion, although they have nothing else in common except the fact that by them the coagulation of casein is inhibited, leads him to believe that the deter-

mining factor in raw milk dyspepsia is the nature of the coagulum. He finally draws certain conclusions, namely: that raw milk and boiled milk are clinically very different foods; that the most striking difference between them, as shown experimentally, is in their reaction to rennin; that the casein of raw milk, unless modified so that it will not form hard, large coagula, offers serious difficulties in digestion that are not present in boiled milk; and, lastly, that these differences between raw and boiled milk should always be borne in mind in comparing clinical, therapeutic and experimental results in infant feeding.

[1] Lane-Claypon: Local Government Board Reports. N. S., No. 63.
[2] Brennemann: Journal American Medical Association, 1913, lx. 575.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Meeting Held at the Boston Medical Library, March 1, 1913. James S. Stone, M.D., President; Fritz B. Talbot, M.D., Secretary.

Dr. Alfred F. Hess, New York, read a paper on

THE PATHOGENESIS OF CASEIN CURDS IN THE STOOLS OF INFANTS.

ABSTRACT.

In the stools of infants we find besides small, soft fatty curds, larger and harder curds which were described a few years ago by Talbot. It has been shown that these curds contain some casein, but it has not been demonstrated absolutely where or how they are formed. By feeding the infants directly into the duodenum by means of the duodenal catheter, Dr. Hess showed that these curds disappear, only to reappear when mouth feeding was again instituted, thus showing that they are formed in the stomach, and if the stomach is circumvented, they disappear from the stool. A second argument leading to the same conclusion is the fact that the interior of these curds is white and not bile-stained as we should expect it to be were they moulded after having been mixed with the bile in the upper duodenum. By means of the catheter, it was shown that the trypsin in these cases is normal and likewise that these curds are so formed that they cannot be digested by the trypsin of normal children. Heating the milk to 170 degrees F. inhibits their formation. However heating it to 147 degrees for 45 minutes, which is the method of pasteurization advocated by the municipal boards of health, does not affect their formation. The question, therefore, is pertinent, whether milk should not be heated to this higher temperature and obviate this non-digestion of casein. The children showing these casein masses presented no other abnormal clinical symptoms. It is true that these curds are found somewhat more frequently in cases where there is some intestinal derangement. However, the primary factor in their formation is the delayed emptying of the stomach, and intestinal disturbance merely aids their appearance in the stool. Dr. Hess emphasized the point that this is not merely a raw milk phenomenon but also a pasteurized milk phenomenon, and also the fact that a substance, in this instance casein, which is readily digested by the intestinal ferments may escape digestion when it is given to the intestine in a dense and compact form such as these masses present.

DISCUSSION.

Dr. Fritz B. Talbot: I have been extremely interested in the interesting paper of Dr. Hess, which adds so much to our knowledge of the digestion of casein, and I think he should be congratulated for the careful way he has gone at the subject. It also gives us a new point of view from which to study the casein digestion. I agree with everything that he said with one exception, and that is something rather that he left unsaid. He said that in the majority of the children whom he saw that had casein curds it did them no harm, at least it did not seem to bother them much, and I think that this is quite true of a large number of babies that we see in our practice here. But there is a class of babies, not a large class, which have casein curds coincidently with acute digestive symptoms, and in that class, whatever may be the cause, those babies always become quickly better when the amount of casein is diminished in the food. There is one phase of the question which has puzzled me a great deal, and that is the fact that babies can apparently take, say, two-thirds whole milk and one-third water or barley water, as the case may be, and pass casein curds, and some of those babies that are having the casein curds have symptoms of indigestion, and when the milk is boiled or the milk is changed so that the babies do not have casein curds, why is it that those babies can digest the same amount of protein, or casein, which previously was apparently doing them harm?

Dr. Maynard Ladd: I was very much interested in this paper and particularly in what Dr. Hess said in regard to the emptying time of the stomach. The percentage of casein in the curds is an important factor. One case that I have been studying with the Röntgen ray, a normal breast-fed infant, on milk of a certain analysis, had an emptying time apparently of two and one-half hours. That same child on modified milk, of the same composition, with the percentage of casein in the same as in the breast milk, had the same emptying time, *i.e.* two and one-half hours. This child on subsequent days with the casein percentage raised to 3.50%, the other elements remaining the same, had the emptying time increased to six and one-half hours, and again to seven and one-half hours showing apparently that the increase in the amount of casein for that particular child (which represented fully five times as much as she was getting in the breast milk) more than trebled the emptying time of the stomach.

Dr. Hess, in closing: I have here some curds from the stomach which have been dried out and they can hardly be distinguished from those passed in the stool. They merely have been dried for twenty-four hours and have come to look very gradually like the curds in the stools. In one case the curds which were vomited were brown on one side like the curds in the stool; they evidently had been dried out on that surface against the mucous membrane. They are rather softer than the curds in the stool because they have not been compressed in going through the different valves and openings. The red ones are those spoken of in my paper as having

been injected with fuchsin, and which went through the gastro-intestinal tract for a second time.

Dr. Willard S. Parker, Boston, read a paper on

THE METABOLISM OF A CHILD WITH COMPLETE ABSENCE OF THE BILE FROM THE INTESTINES.

ABSTRACT.

George M., age four years, entered the Children's Ward at the Massachusetts General Hospital Sept. 28, 1912. He had had for two months a tumor in the right upper abdomen which on operation by Dr. Hugh Cabot proved to be a cyst of the biliary tract. The cyst could not be completely removed. After operation there was a biliary fistula, with complete absence of the bile from the intestine. A three-day metabolism period showed that the child's nitrogen metabolism was normal but that there was a great disturbance in the fat metabolism, the absorption being only 55% as against the normal of 88 to 96%, while the split fat 64% was much below the normal of 90%.

Dr. Isador H. Coriat, Boston, read a paper on

AMAUROTIC FAMILY IDIOCY.

ABSTRACT.

Two cases of amaurotic family idiocy with detailed clinical histories were reported, with photographs of the patients and the family pedigrees. The first case presented the unusual feature of a combination with hydrocephalus. The eye findings were typical in the two cases. Both cases were of Russian Jewish parentage and both showed strong hereditary traits (blindness, hyperthyroidism, hysteria and amaurotic family idiocy). Some general remarks were then made on the comparative race psychopathology of the Jew with particular reference to the development of amaurotic family idiocy. It was shown that the disease is due to the absence of a special type of resistance in certain constituents of the nerve cells, probably a recessive trait according to the Mendelian theory.' This special lack of resistance is probably caused by the environmental strain and the persecution to which the parents of these cases are subjected as consanguinity and infection seem to play a minor rôle. It was further shown that the disease is really not a form of idiocy, as neither the macoscopical nor the microscopical appearances of the brain correspond to the pathological changes found in idiocy. It is really a special form of amaurosis associated with dementia and therefore the name of amaurotic family dementia was proposed for the disease.

DISCUSSION.

Dr. Charles P. Putnam: Partly, perhaps, from coming in late, I did not grasp the reason why this is called a familial disease. In the cases mentioned no members of the family were apparently affected.

Dr. J. L. Morse: I have seen, I think, at least a dozen cases of this disease, but will refer to but one of them. This was the case of a child which was under observation for about one and one-half years, and somewhere midway in this time it suddenly began to develop symptoms of hydrocephalus. Repeated lumbar punctures showed the fluid under high pressure but absolutely normal in other ways. As I remember, that tendency lasted two or three months and then quickly disappeared again, the fontanelle became depressed and there were no further evidences of hydrocephalus. Of the cases which I have seen, there has been only one in which there was another case in the same family. I have not been over the literature recently, but my impression is that in the earlier reports there was quite a preponderance of several cases in the same family, but in the later literature most of the cases have been single ones. As I say, I may be wrong about this, not having gone over the literature recently.

Dr. Walter B. Swift: It is interesting to note at this time that Dr. Higier, Poland, reports a family in which two of the children had optic atrophy, two had cerebellar ataxia and one had this typical amaurotic family idiocy, showing that in all these lesions there is a similar degenerative process. These were members of a Jewish family.

Dr. Coriat, in closing: The disease is called a familial disease because in a very large percentage, I might say an overwhelming percentage, of the cases reported, the disease has occurred in more than one member of the same family. It occurred in two members of the family in one of my own cases, but there have been cases reported in the literature and also in some cases previously observed by me, where it occurred only in one. This tendency for an isolated case to appear is also found in other so-called familial diseases, particularly those disorders which we know to be strongly hereditary, such as Friedreich's ataxia. It was interesting to hear that the cases mentioned by Dr. Swift occurring in one family (amaurotic idiocy, primary optic atrophy, cerebellar ataxia) were also in children of Jewish parentage. This observation from the literature is the more valuable because the cell-finding in some forms of cerebellar hereditary ataxia are apparently identical with those found in amaurotic family idiocy. Concerning the development of hydrocephalus, replying to Dr. Morse's remarks, I would say that in my first case, which was under observation for one and one-half years, there has been a steady increase in the hydrocephalus, although the condition has been at a standstill for two or three months, and the head is now quite large with the fontanelles tense and bulging.

NORFOLK DISTRICT MEDICAL SOCIETY.

Meeting of April 3, 1913.

The regular meeting of the Norfolk South District Society was held at the United States Hotel in Boston, April 3, 1913, Dr. Charles S. Adams of Wollaston, presiding. The Secretary, Dr. Reardon of Quincy, included in his report of the previous meeting an abstract of the address given by Dr. John T. Bottomley on "Jaundice." Dr. Sturgis of Hull, appointed delegate to the meeting with the Accident and Insurance Board for consideration of the "Workingmen's Compensation Act in it Relation to Physicians," presented his report.

The address of the meeting was given by Dr. George M. Garland on "Pasteur the Man." The great scientist's humble origin, his earnestness as a student, his devotion and great popularity as a teacher were emphasized. The fact that Pasteur was not a physician, but that his great contribu-

tions to humanity were made as a pure scientist, was clearly shown. Pasteur's relation and interesting correspondence with Lister were described and some interesting letters were read.

The influence also of Fabré was referred to and a deserved tribute paid to Fabré's great achievements which the French Government has but lately recognized.

AMERICAN PSYCHOPATHOLOGICAL ASSOCIATION.

May 29, 1912.

The third annual meeting was called to order by the President, Dr. Adolph Meyer, of Baltimore, Md., in the State Psychopathic Hospital, Boston.

PRESIDENT'S ADDRESS.

Dr. Adolph Meyer, Baltimore: The chief topics of my address are some fundamental conditions under which the introduction of psychology and psychopathology in medical schools could find a satisfactory ground. Its foundation must be a critical extension of common sense psychology, with an emphasis on the dynamic features, and a careful training of the student in a critical handling of psychological forces and biological forces in general and in the study of their integrative factors. For this reason the student must broaden his over-simplified mechanistic views. It is essential that even in such matters as the physiology of the nervous system the student should also be trained in a critical use of biological concepts, *i.e.* in treating the data as functions and quantities which we must often be satisfied to measure in the light of the effect produced on the environment instead of expecting that unless we can get at the measure in terms of quantities antecedently absorbed from physical nature the function could not be studied scientifically. It is essential to view biological and psychological functions in the light of their "aufgabe," *i.e* the function to be performed, not merely in the light of "the stimulus" but of all the conditions on which the realization of the "aufgabe" depends; and the student must be trained to do this critically, as is done in serology and kindred fields of pathology. On this ground it is possible to do justice to the non-mental integral factors as well as the mental ones without any danger of neglect of the somatic components, or, on the other hand, of the psycho-dynamic component, and we can expect the student to recognize the facts in a sane and sound setting and to accept the methods of modern psychopathology as an extension of his training including even such issues as symbolisms otherwise unintelligible. In the courses themselves special care should be given to the broadening of a safe biological training on such matters as the sex life before full-fledged and perhaps one-sidedly psychologizing theories be given to the students. More and more psychopathology will also have to lead the physician to a broadening of his attitude into leadership in economic and especially also in ethical problems. We shall have to realize the "solidarity of mental hygiene and ethics." The best foundation for these developments will undoubtedly be the concrete work of a well-conducted psychopathic hospital, with its social service department; and also a sincere effort on the part of the divergent schools in psychopathology to make themselves clear and better understood by others rather than to point out the errors of the ways of others. For this reason the symposium was arranged to cover one concrete and definite case seen and studied by a number of members of the Association and brought up to see the different ways in which different men look for their facts and handle them. While theories may diverge, the facts hold them together.

PSYCHOLOGICAL SETTING OF IDEAS.

Dr. Morton Prince, of Boston: A perception, or idea of an object, may be regarded both as a process and as a group of conscious elements some of which are within and some without the focus of attention. For example, my perception of X, whom I recognize as an acquaintance, is much more than a cluster of visual sensations, but includes a number of imaginary memory images according to my previous knowledge of him. But this is not all when perception is regarded as a process, for the objects of experience have associative relations to other objects, actions, conduct stimuli, constellated ideas, etc. As a result of previous experiences various associations have been built up with objects and these complexes from the setting, or what Titchener calls the context, which gives the perceptions meaning. Perception takes on meaning. Perception takes one meaning as it is constellated with one complex and another meaning with another complex. Thus each of three persons, an architect the owner and a shopper, will have a different perception of a certain building which he knows to be a department store. Also, the perception will produce different effects upon the different observers depending upon the difference in setting. The settings may be partly or wholly unconscious. I may not be able by introspection to find in my consciousness a record of past experiences with an acquaintance, for example, which gives the setting to my present perception. In many cases a person is not able to explain his viewpoint which may be of a very definite, unusual or abnormal character. For example, one may have an abnormal fear, as of fainting or a particular disease, yet he can give no explanation of it. It is, however, quite possible that there may be in the fringe of consciousness thoughts of which he is not aware or for which there is amnesia after the attack. In many cases, for therapeutic purposes, I have changed the setting, the viewpoint and the meaning of the ideas of the patient by suggestive procedures, often by hypnosis. This is the goal of psychotherapy and in my judgment the one fundamental principle common to all technical methods of such treatment.

A CLINICAL STUDY OF A CASE OF PHOBIA.

Dr. Morton Prince, Boston: The patient is an unmarried woman, forty-one years of age. Her attacks, varying from time to time, present the following chief symptoms: 1. A feeling of unreality due to (*a*) "inability to feel the air," coupled with (*b*) a sensation of queerness of the body difficult to describe, a "pulling out feeling," a "horribly disagreeable feeling," (*c*) a feeling of "wildness," of insecurity, of inability to rush. There is also (2) confusion of thoughts, (3) at times, the usual anticipatory fear of attack usually ushering it in, and (4) the ordinary physical manifestations of fear. In addition she experiences visualizations of herself

in a convulsion. Furthermore, these attacks may be traced back either to some significant sensory stimulus or to some inciting memory images or thoughts.

Of these various syndromes, the "unreality of the air" is the most common and figures in all attacks. The experience of unreality is of two varieties: passive and unreality attacks accompanied by fear or panic. The latter constitute the phobia attacks proper. Visualizations of herself in a convulsion are common in both forms of attack. Her true obsession is the unreality of air feeling accompanied by fear. Careful examination disclosed that it is a phobia of insanity and death. These two main complexes cluster about a number of the patient's reminiscences and always stand back of the unreality of the air syndrome. It was also found that they had become engrafted upon an earlier fear of insanity which the patient had acquired through certain misconceptions concerning the nature and meaning of insanity during her early girlhood days. She was also beset by a fear of hell. These complexes,—insanity, death, hell,—furnished a special setting which determined for her the meaning of certain sensations and perceptions particularly at times when she was suffering of hepatic torpidity or felt otherwise depressed.

The fear of railroad trains, of being present among strangers, etc., which she experienced, was in reality due to her realization that, if an attack should occurr under such circumstances, she would be helpless and could obtain no relief. "There is, therefore, no symbolism and no abstruse or subtle meaning to the fear."

The indications for treatment are: First, find out the true object of the fear, the reason for the subject's phobia and then "build up new complexes and rearrange the old ones to form new settings for the disturbing ideas so as to give these ideas a new and healthy meaning."

DR. E. W. TAYLOR, Boston: The history of this patient is known by various physicians since she has been to nearly every neurologist in Boston. She has been a year and a half with Dr. Putnam, varying times with others and some months with me. She is a very open-minded woman, perhaps not so defensive as Dr. Putnam would be inclined to assume. She spoke very candidly of doctors with whom she had previously had dealings. She appreciated their efforts in her behalf and also their failures and from that point of view it seems interesting to give some of her own impressions. I would state at the outset, without the slightest disparagement of methods, that the so-called psycho-analytic method as practised by the followers of Freud did not appeal to her. That does not prove in the slightest degree that that was not the method by which improvement might not finally have resulted. but, as very faithfully practised by Dr. Putnam and practised faithfully by her, at the end of the period of treatment she was not improved. I know less about the treatment by other methods. She was apparently benefited to some extent by all to whom she went. She found something in each that was of practical use. I think Dr. Prince does not quite understand the amount of benefit she is getting from the Emmanuel treatment when he states that she is better under the Emmanuel treatment than any other, inasmuch as she told me that she was getting her chief benefit from her employment. My dealings in general with the patient were extremely interesting. She appeared to be a patient who was suffering from the fundamental inherent fears that I believe we all have, as Sidis has pointed out, namely, the desire for self-preservation, which, conversely, means the fear of death and the fear of insanity. I think that every man the moment he reaches self-consciousness, fears insanity; he aims to be normal and sound mentally; this is only secondary to the natural instinct of self-preservation which we recognize as fundamental. In this particular patient both of these factors came out very distinctly. My method with her was—she said it was beneficial—simply an elucidation of most of the facts which Dr. Prince has brought out. In many ways she has improved. She has discarded some of her fears and developed others. It seems in this case unprofitable and unnecessary to apply the sex ideas.

DR. JAMES J. PUTNAM, Boston: Dr. Prince has more than once in his paper stated that she said "Now I understand, I never thought of that before." "I understand that now." She said that to me at least a hundred times. As to the psycho-analytic methods she said: "I never before had any treatment which really made me understand myself and the nature of my trouble as the present one has done." I mention this to call attention to the fact that her manner and her frankness were a sort of defence neurosis. It was just because she was so ready to adopt the view of a person she was with that she deceived herself. When I was treating her last she seemed almost well and fear after fear disappeared. She was working and happy and going about and then came the prospect of the summer. I was going away, then came the need for protection and she had a relapse.

DR. ISADORE H. CORIAT, Boston: This patient was under my care for about a year and I saw her frequently, several times a month, during that period. When she first came to me the neurosis consisted principally of the fears and the impulse to collect useless objects plus losing her mind or fainting in public places. At first she did not dare go around without a member of her family and a nurse. The collections she made were wonderful and I still have spirit of ammonia and valerian which she always carried with her for the attacks. The analysis of Dr. Prince in the light of what I know of the patient seems to me to be prefectly applicable, and, while there may have been childhood conflicts which might have led up to these things I feel that the real starting point of her fears and realities was later than in childhood. My treatment consisted principally of re-education, of daily routine, and later of hypnosis in order to bring about a new psychological setting. I tried to substitute for the fears and unrealities a feeling of self-reliance and of confidence and of the realities of things.

DR. B. ONUF, New York: I think the subject extremely suggestive and interesting. I had one case that had many similar features. I believe if more were studied they would all be shown to have many features in common. One thing that struck me in my case was the extreme systematization of the ideas, which was also present in the case of Dr. Prince and Dr. Putnam. This systematization is so marked that it has a great deal of similarity with the systematization of a paranoiac. The question is: "What gives this systematization?" I think it is simply that all these ideas as they develop from each other have some element in common. I think that element is the emotional element and the emotional element is the feeling of wrong. In my

case a history of masturbation was present which dated back to childhood, and this patient persistently refused to believe that when she masturbated, she did anything wrong. I demonstrated to her that in her actions she gave proof of doing things that were not approved of because she maintained the greatest secrecy about the matter. This patient absolutely denied to herself facts that were absolutely apparent.

Dr. A. A. Brill, New York: You have noted that the case reported by Drs. Putnam and Prince was that of an unmarried woman. The main difficulties in the neurosis of this kind lie in the sexual life. As long as we cannot give that patient a substitute for her neurosis, which is the desire of ungratified or repressed libido, I do not see how we can cure her. I think the unmarried cases are the hardest cases. While they are with the doctor they tell the doctor they feel well, but later they return to their symptoms and so they keep on going from one doctor to the other.

Dr Ernest Jones, Toronto: The most fruitful way of approaching the anxiety states is to take the simpler forms first, those characterized by predominantly somatic disturbances, without the elaboration of complex forms. I think that the idea of death and hell and insanity in her case seemed to suggest very strongly the suppressed wish of begetting a child to her father. That seemed to me the kernel of her neurosis.

Dr. Morton Prince, Boston: As to Dr. Brill's statement that we know the main difficulty is ungratified libido I think this is a priori reasoning from his point of view. We do not know that is the case. There have not been any facts brought out to show that that is a fundamental cause. I do not think that unmarried women are more difficult to cure.

PSYCHOANALYSIS AND SOCIETY.

Dr. Trigant Burrow, Baltimore: Philosophically, psychoanalysis is but a name for the utter abrogation of religion and the apothesosis of sex. For, since psychoanalysis interprets neurotic disorders as consisting in the distortion of the psychic demands of sex into symbolic equivalents through the patient's repudiation of this primal instinct, it is but natural to expect that the logical therapeutic procedure in these conditions lies in reconverting such fruitless substitutes into their original trend through recourse to sexual indulgence. One would expect that conditions due to blocking of an outlet were to be relieved through clearing the outlet. We must understand, however, that sexuality has its psychic as well as its somatic aspects and clearly recognize that the affections which come within the province of psychoanalysis are essentially psychological disharmonies, and that their treatment depends, therefore, upon resort to psychological and not to somatic agencies. It, therefore, seems to me highly important to inquire into the social and moral aspects of the situation confronting us in this connection. Psychopathology recognizes that there is a psychology as well as an anatomy of disease. We now know that psychic disorders are not neural, but moral; and that these conditions reside not in the cortex but in the conscience. In other words the morbid process confronting us is essentially a disease of the totality we call the soul and consists of divided elements at war with one another, the one trend autoerotic, infantile, egoistic, unconscious; the other moral, social, altruistic, conscious. Now as the nature of a neurosis is a moral conflict in which the patient is torn between the contrary impulses of right and wrong, that is, of reason and instinct and as through recourse to repression and substitution such an individual has resolutely declared in favor of the latter, that is, of loyalty to self-imposed command, and resistance to the gratification of self, does it not follow that the appropriate avenue of sublimation for the neurotic in general lies in the direction of renunciation of character, of the moral ideal? In other words does it not seem that the logical sublimation for unconscious repression is conscious control? Character is respect for the permanent, the ulterior and the social as opposed to the immediate, the limited and the personal. In a word, it is loyalty to the social ideal. The question is then shall psychoanalysis seek to cure the neurosis through the shattering of the social ideal? Are we to say to the men and women who are made aware through analysis of the sexual complexes underlying their onerous ideals, "Let your ideals go! Ideals are phantastic, neurotic. Obey your instincts and so be at unity with yourself"? That is one way of deciding the issue, but it is the way of mediocrity and concession. It is the selfish, personal, and impermanent way, not the way that looks to the larger social interest. The conflict embodied in the neurosis is one which will continue while life lasts, for the infantile, instinctive demand is ever present and insatiate; but while admitting its importunities into consciousness, it seems to me the duty of the psychoanalyst to recognize and to take sides with the splendid power of resistance, so strong in the neurotic, against life's cruder demands and by converting it into a conscious, open, reasonable resource to assist him in the attainment of a higher manhood. He does not silence the lesser, instinctive need, it is true, but at least he contributes to the production of a higher, more conscious type. Perhaps from the viewpoint of therapeusis alone the attitude here taken is not the most immediately rewarding, but my position is that psychoanalysis is responsible not alone to the individual but to society as well, that it has to take cognizance of the civil as well as of the personal issues entailed. It seems to me, therefore, that to seek to remove unconscious repression through the sublimation afforded in conscious control is not only logically, but ethically, the only attitude of the psychoanalyst who is fully sensible of the deep social significance presented in the drama of the neurosis.

DISCUSSION.

Dr. James J. Putnam, Boston: I like the general trend of Dr. Burrow's argument so much that I should like to say a few words that may seem critical, but I am sure are not intended to be such. It would imply rather a supplement to his views rather than antagonistic to them. It seems to me that psychoanalysis is to be regarded as more or less on a par with the natural sciences and thus does a certain work and no more. The physicist deals in certain constructions which he assumes and therefore gets at certain working theories which are of great value. The biologic evolutionist does no more. It seems to me that the psychoanalyst really does not go back to the simplest form of the problem at all. He leaves the question of the origin of these instincts really untouched. What we really need and should study as a supplement to psychoanalysis is philosophy in one or another form. I think the

work is social, as Dr. Burrow states. We cannot really get hold of the social relationship and the psychogenetic aspect becomes of immense importance.

Dr. Morton Prince, Boston: Dr. Burrow's paper is one of much interest and a very timely one. I am not quite clear in my mind as to whether I understood his position and therefore I hope that he will not take what I have to say as a criticism on his paper. Every individual, of course, has certain instincts. The fear instincts are inherited just as reflexes are inherited and these instincts in the motive power calling into action are of biologic importance. They are necessary. Do not accept the idea that the main primitive force, so to speak, of man is the sexual. I can't believe, for example, because primitive man has had the conception of God, etc., that such a conception in our minds is an inherited trend of thought. On the contrary, I think it is entirely a matter of education on the part of the individual. It is the habit of life to explain certain forces in the universe.

THE OEDIPUS-COMPLEX IN THE PSYCHONEUROSES.

Dr. Isadore H. Coriat, Boston: The early sexual love of the son for the mother, which appears in either predisposed or exposed individuals during the early years of childhood, is termed the Oedipus-complex, as its psycho-sexual attributes are the same as those recorded in the Oedipus fable. This incest trend is repressed, however, but may appear later in life, when the infantile elements emerge from the unconscious, in the form of a compulsion neurosis, homosexuality, an anxiety neurosis or even in the form of masochism in which the inflictor of pain is identified with the subject's mother. The readiest method of getting at this Oedipus-complex in adults is through an analysis of the dreams, in which the incest phantasy may appear either literally or in a symbolized and disguised form. Four cases are recorded and the dreams analyzed, in all of which a strongly repressed Oedipus-complex furnished the main unconscious mechanism of the psychoneurosis.

DISCUSSION.

Dr. A. A. Brill, New York: It is a mistake to say that children who are predisposed to psychoneurosis usually show an exuberant love for the mother. I have found it in just as many normals. In the neurotics it comes to the surface. We all form the impressions of a man and a woman from our parents and we form the so-called mother image and father image and they remain the standards for future relations with men and women. That is when we meet with men or women we either like or dislike them, depending upon how they fit in with the child's image. Thus it is the parent's fault. Usually the mother will take the boy and give him too much love because she misses the Dantesque poetic love she has gotten before marriage. If she gives him too much love, if the mother allows a child to sleep with her until 10 years old, she is doing a wrong thing. It is no wonder he should keep it up.

Dr. Alfred Reginald Allen, Philadelphia: I believe this is a very common, if not always present, complex of early life and I think we find a residuum of the Oedipus, in the fact that the young boy, say from 7 to 14 years of age, wants to play with other boys and is ashamed of playing with little girls. What has happened to him is that he has repressed his love for his mother and he has symbolised all women with his mother and they are abhorrent to him. He has gotten to the point where the swing of the pendulum is in the other direction.

REMARKS OF PSYCHOGENETIC CONVULSIONS AND GENUINE EPILEPSY.

Dr. L. Pierce Clark, New York: The author pointed out that although epilepsy was an organic disease with either macroscopic or microscopic changes in the cortical elements, the clinical expression of the disorder was still frequently confounded with convulsive episodes of purely psychogenic origin. Frequently the two disorders exist in the same case, the two disorders were not mutually exclusive. He urged a fuller detailed analysis of all the fit types and not to be satisfied with the crude designations of grand mal, petit mal and psychic seizures of so-called genuine epilepsy. He believed that almost all the so-called psychic epilepsies were psychogenic in character and capable of being controlled or removed by Freudian analysis. Post-epileptic automatism and the manic periods were to be better explained on a basis of a dream state in which a wish fulfilment was the motive or ruling idea. Psychoneurotic individuals may not only have aura in their psychic episodes like genuine epilepsy but they may fall and injure themselves and in exceptional instances even pass urine, bite the tongue and lips and lose consciousness. Psychoneurotic epilepsies are differentiated from the truly epileptic in character in that the former are disorders of association of ideas, have great constancy, often prevented by hypnosis and often displaced or prevented by purely psychic treatment and in the majority of instances uninfluenced by sedatives. Amnesic periods are purely functional in character and intelligence tests reveal no real mental impairment as in that of the genuine disease. In his experience in the association state, epilepsy and psychogenic episodes, the latter are not so permanently or completely removed as in the uncomplicated psychoneuroses. The sexual element is not so dominant or marked. For two years he has submitted all his epileptics to psychoanalysis with considerable success, especially affording satisfactory results as an accessory to the so-called hygenic treatment of epilepsy. Again, too, the cured or arrested cases are aided in conserving their energies and given a better outlook on life. The author believes that the epileptic has a characteristic constitutional makeup which is independent of the deterioration characteristics of the established disease and would particularly ask clinicians to make their diagnosis and prognosis on the intensity of this state rather than upon any peculiarity of the convulsive phenomena themselves. He entered a special plea for the broadest biologic conceptions of the epilepsies as well as the psychoneuroses resembling the former.

DISCUSSION.

Dr. Ernest Jones, Toronto, Canada: We seem to be reaching the ground that the majority of cases diagnosed as epilepsy are truly of organic character, but in some cases we find psychogenetic convulsions which are truly indistinguishable from the true epileptic fit. This has been known for years although even yet there are some neurologists who do not accept it. It points out the fact that stress

cannot conclusively be laid upon the fit itself. I think it is a very safe rule to go by that one shall not make a diagnosis of genuine epilepsy unless there are other evidences apart from the character changes. Light can be thrown upon the psychology of these patients by psychoanalytic investigations and in a way that no organic or anatomical study can ever expect to. The changes in the cortex really throw no light upon the changes of the character and of the mental characteristics that we find in this disease.

Dr. A. A. Brill, New York: I have had some experience in analyzing cases called genuine epilepsy. One remarkable case was diagnosed and treated for 9 years. I treated it nine months and it is now almost two and one-half years since and she has not had any recurrent attack. I do not report her as cured, although the analysis is complete. I have treated a young girl in the Vanderbilt clinic who has been coming for four years and had a regular bromide rash and was supposed to have typical fits. I treated her by hypnosis with very good results.

PSYCHOGENIC DISORDERS IN CHILDREN.

Dr. Tom A. Williams, Washington: To treat a neurotic child by rest or other physical means is mere rule of thumb. The frequent failures which follow such an unscientific method are prevented by ascertaining and then rectifying unwise psychological factors in the etiology. The cases reported show the utility of proper psychopathological training in that they were all rapidly cured after months of failure by the empirical methods employed before they were seen by the author. For instance, a so-called chorea was found, by analysis, to be in reality a tic due to scrupulous ideas. The cause of an insomnia and nervousness after study was discovered to be induced by the apprehensiveness of the parents. The removal of unwise solicitude and by conscientiousness has kept the child well for 18 months. A case, showing tearfulness and distress due to unwise repressions, was cured in a few days after analysis had revealed the source of these. A case in an older child of developed obsessions and mental manias was traced to a jealousy complex. Psychomotor exercises along with the realization of the import of his own state produced recovery in a few months. Likewise simple explanation and psychomotor exercises served for the removal of pseudo-hallucinations and hysterical phobia in an eight year old boy. The discussion of the mechanism of the cases points to a mechanism by induction by unwise parental management rather than through the direct transference mechanism postulated by the followers of Freud from their analysis of adults.

Book Reviews.

Studies in Endocrinology. By Dr. Naamé. Paris: A. Maloine. 1913.

Endocrinology is the science of the internal secretions. These studies represent the author's opinions and experience in the antimicrobic opotherapy of various diseases which he considers due to functional or organic disturbances of the several glands by which the internal secretions are produced. Thus he explains the symptoms of Asiatic cholera and of tuberculosis, as caused by acute toxic hypoadrenalism secondary to vibrionic or bacillary invasion; seasickness as a reflex functional hypoadrenalism; hysteria as reflex functional hypoparathyroidism; epilepsy as dystrophic hypoparathyroidism; hyperemesis and the morbid cravings of gravidae as hypoövarian hypothyroidism; neurasthenia as due to general hypofunction of all the glands of internal secretion. Pertussis he treats by the administration of ichthyol, which he believes specific; but for the former group of diseases he considers opotherapy superior to chemotherapy or serotherapy. His work, which is entirely theoretic and empiric, is unsupported by experimental evidence. It is, however, ingeniously original, and repays consideration, even if it does not deserve acceptance.

Chloride of Lime in Sanitation. By Albert H. Hooker. New York: John Wiley and Sons. London: Chapman and Hall. 1913.

This volume aims to present a collection of all the data relating to the uses of chloride of lime as a disinfectant. The first third of the text consists of a series of seven expository essays on chloride of lime, its uses in water purification, in sewage disinfection, in street sprinkling and flushing, in epidemics, surgery and general sanitation, in farm and country life, and in the war against the common house-fly. The remainder of the volume consists of a series of 442 references and brief abstracts of periodical articles from recent literature on the above subjects. The whole book constitutes a useful compendium of information for sanitarians and those in charge of work connected with the public health.

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M.D. With 172 illustrations, mostly original, including four colored plates. Second edition, revised and rewritten. St. Louis: C. V. Mosby Company. 1913.

The first edition of this book was reviewed in the issue of the Journal for June 23, 1910 (Vol. clxii, p. 871). In this second edition the text has been completely revised and rewritten; operative technic has been further simplified; new diagnostic methods, the use of quinine and urea local anesthesia, and the value of radiology in proctology are described; and forty new illustrations, including two colored plates, have been added. Despite these augmentations, the number of pages is conveniently reduced from 374 to 339. The book is particularly to be recommended to general practitioners, and with the improvements of this edition should continue to afford them a service of increasing usefulness and information.

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TYPHOID FEVER IN MASSACHUSETTS.

THE month of May marks the recurrence of the typhoid season, and with it of the problem of controlling and eradicating this essentially preventable disease. There is, therefore, particular pertinence in the recent publication by the Massachusetts State Board of Health, in its monthly bulletin for February, 1913, of a preliminary report on "Typhoid Fever in Massachusetts" by a special committee, appointed to consider this subject, and consisting of Dr. Harry Linenthal, Dr. Charles E. Simpson, Dr. William W. Walcott, and Dr. Lyman A. Jones.

This report first points out, and illustrates by statistics, that the annual death-rate from typhoid fever is much lower in the large cities of Northern Europe than in the United States as a whole, in Massachusetts, or in the large cities of this country. During the four years from 1908 to 1911, inclusive, there were in Massachusetts only 5 cities and 24 towns whose typhoid death rates per 100,000 were as low as, or approximated, those of the three largest European cities in 1910. During the three years from 1908 to 1910, inclusive, the total death-rate per 100,000 from typhoid fever in Massachusetts was 13.6, nearly three and one-half times higher than the low average rate in the large European cities.

After discussing these statistics, the report proceeds as follows:—

"It is conservatively estimated that there are 8 cases of typhoid fever for each death from this disease, though the proportion may be greater or less in individual outbreaks. Assuming this proportion as correct, there are in Massachusetts each year over 70 cases of typhoid fever per 100,000 of population, equivalent to nearly 2500 cases annually over and above the present rate in the European cities previously mentioned. These cases are surely possible of prevention.

"In view of the fact that typhoid is a preventable disease, and that its occurrence in the State as a whole is so pronounced, causing many unnecessary deaths, it is astonishing to find how many difficulties at present exist, when it comes to the matter of prevention.

"Perhaps the greatest obstacle of all is the indifference, not only of the general public, but even of health authorities and physicians. Typhoid fever has been present so commonly year after year that it has come to be considered as a regular, almost a natural, feature of the life of the community. Through vaccination smallpox has been so far prevented that few people, including physicians, have ever seen a case. If a case is discovered, the disease occasions consternation, and the community submits to rigid regulations to prevent its spread. But the same community manifests comparatively little fear or uneasiness because of typhoid fever in its midst, even though, in individual years, the typhoid cases number a hundred for every case of smallpox.

"While many local boards of health are carrying on active campaigns with excellent results, other local authorities, more numerous, are handicapped, partly because they do not appreciate the importance of public health work, and partly because they do not know how to proceed, even though they may have every desire to do so. To a considerable extent this is the outgrowth of the system under which they are appointed.

"In cities, under their charters, the members of the board of health are usually appointed by the mayor. In consequence it happens not infrequently that the membership of the board changes entirely when there is a change in the local administration, the new mayor appointing to the health board his personal friends or supporters. The new appointees may be entirely unfamiliar with health work; indeed, they may not even be interested in it. Such course of action does not tend to secure an even and progressive administration of health laws.

"In towns the law provides that one member of the board of health shall be elected annually to serve for a period of three years; in towns with a population of 5000 or over it provides that one member shall be a physician. Were this latter practice universal much better health work would result."

The report then mentions specific instances in which conflicts have arisen between health officials and local political authorities, leading to interference with the functions of the former, and lack of a consistent sanitary policy.

"Another obstacle to the carrying on properly of health work is the lack of sufficient funds. This lack grows out of the popular and official ignorance as to the value of health work already mentioned.

"The idea has prevailed that the board of health existed merely to supply the means for the paying of political or other debts; that its work (which is too often the case) amounted to nothing; that there was little or nothing of importance for it to do, and that, in consequence, there was no real need for funds. Appropriations and salaries are always small; indeed, in many localities there is no appropriation whatever for health work. Bills incurred for health purposes are paid from the contingent or general funds after the selectmen or other officials have passed upon the necessity for the expenditure. Under the circumstances the wonder is not that so little has been accomplished, but that so much good work has been done.

"To secure better results there must be greater permanency in health departments. Interested and competent officials are needed, and when secured their tenure of office should continue during their efficiency. They should be paid adequately. The public should be taught that ample funds are necessary for the carrying on of health work; and that, although much less spectacular, there is much more virtue in preventing illness than in merely overseeing an epidemic after it has occurred.

"Within the last few years interest in country life and out-of-door recreation, especially during the warm season, has led to the establishment of numerous pleasure parks, summer colonies, and other places where out-of-door living may be enjoyed. Within the State many such places have sprung up rapidly, and often dwellings are thickly crowded. The majority of these localities are without water supply other than the well, or means of sewage disposal other than the common privy.

"In the absence of all sanitary regulation or supervision, the dangers from typhoid fever are great, there being many opportunities for the spread of the disease when once the infection is introduced. This criticism applies, also, to the many construction camps maintained in connection with steam and electric railway and power development during the past few years. There is urgent need for State-wide sanitary regulation of such summer colonies and construction camps."

The report next discusses difficulties having to do with the agencies through which the infection is spread,—the water supply, the milk supply, other food supplies, flies, contact and carriers;—and other difficulties, such as lack of care as to milk bottles, of investigation, isolation, and prompt reporting of cases, of instruction as to disinfection, and of effort to follow up carriers.

With regard to specific measures for overcoming these difficulties and continuing the steady reduction of typhoid which has been accomplished in Massachusetts during the past thirty years, the report speaks first of antityphoid inoculation:—

"Although every effort should be made to eradicate all sources of typhoid infection, this happy result is not immediately attainable, and the committee desires to call attention to the remarkable results following the use of antityphoid inoculation. During the past eleven months, since such inoculation has been carried out in the United States Navy, there has not been a single case of typhoid fever among the 64,000 troops so protected. When 12,000 inoculated soldiers were mobilized along the Mexican border last year, not one case occurred, though camp conditions were very similar to those at the time of the Cuban war, when typhoid fever was exceedingly prevalent.

"Similar success has followed the use of antityphoid inoculation in other armies, while in civil life evidence is accumulating to show the value of its use in protecting those exposed to infection.

"For these reasons the committee urges the use of antityphoid inoculation. Its use by hospitals for the protection of nurses and all other employees is especially urged; and likewise the material may well be used to inoculate the remaining members of a household when the presence of the disease is first recognized or suspected.

"What has been said concerning the difficulties encountered in the prevention of typhoid fever makes plainly evident the many factors entering into the problem. It shows unmistakably that the problem is far-reaching; that it is not confined to any one city or town; that no local board of health alone can solve the problem, though its own health conditions be perfect, because conditions beyond its borders may undo all that it has accomplished.

"In short, the work can only be done by some central organization like the State Board of Health, through its inspectors of health, cooperating with the local health authorities, and bringing up to a proper standard the health work in those communities as yet not sufficiently active or organized.

"In regard to legislation, the committee is strongly of the opinion that it should cover the whole State. Otherwise health administration will vary much in different localities, and the careless community will still be a source of real danger to its neighbors."

The report then outlines the plan of the committee for systematic reporting of typhoid cases throughout the State, in order that foci of infection may be promptly investigated and measures instituted to prevent further spread of the dis-

ease and to discover and eradicate sources of its dissemination.

Finally, the committee completes its recommendations as follows:—

"Much of the work against typhoid must be educational. It is necessary to convince the people, local boards of health and physicians, even, that typhoid fever is a preventable disease; that to prevent it their active coöperation is needed; that suspicious cases should be reported early, and should not wait upon positive Widal tests because it is this uncertain period, before a positive diagnosis can be established, that is the most dangerous of all from a general standpoint; for these cases not properly controlled may afford the starting point of an extensive outbreak.

"The committee is of the opinion that the physician who does not report a case of continued fever as a probable typhoid as soon as he has eliminated other common causes, and who does not in such a case take appropriate precautions, must shoulder very serious responsibility to the community for any subsequent results in the community.

"The use of Widal tests and blood cultures as an aid in making or confirming a diagnosis should be encouraged.

"All stools and urine from typhoid patients and carriers should be thoroughly disinfected, whether the patient is in the hospital or in the home, and whether the discharges enter the sewer or whether they are otherwise cared for.

"Local boards of health might very properly provide disinfecting outfits which should be loaned to householders for use when typhoid is present, since few householders have the necessary equipment, and if the providing of such equipment is left to the householder, the disinfection is often indifferently carried out.

"All convalescents from typhoid, whether in the hospital or in the home, should be detained until two negative examinations of the stools and urine have been obtained at an interval of one week.

"Carriers, whether transitory or chronic, should be restrained, by force if need be, from handling all food products. This should apply especially to those employed in dairies, in kitchens or dining-rooms.

"Circulars of instruction should be furnished to convalescents and carriers containing information as to precautions necessary to prevent the further spread of the infection.

"It is the purpose of the committee to render available the information collected by means of maps, card indices, etc.; that there shall be frequent meetings to discuss and tabulate the information obtained; that aggressive work be inaugurated in those places where typhoid fever has been prevalent, without waiting for the usual outbreak; and in case there is any suggestion of an outbreak in a given locality, that some one or more members of the committee will visit that place at once to confer with the local authorities as to what measures may be taken to avert the threatened outbreak."

This report, which is supplemented by instructive accounts of two recent local epidemics of typhoid fever, deserves the earnest and serious consideration of all physicians, with whom rests the ultimate responsibility for, and possibility of, the eradication of this preventable infectious disease. The work of the committee represents the type of effort required in preventive medicine of the future, and serves to define the problem, to point out the method of its solution, and to afford the means of its accomplishment. Particularly to be emphasized to practitioners is the desirability of the general employment of antityphoid inoculation. Local applications of this protective measure, by enterprising physicians in enlightened communities, should further demonstrate its efficacy, as has already been done in hospitals, armies, and navies. This, in combination with the universal practice of the other rigorous sanitary and preventive measures already well understood, but not yet fully practised, should soon reduce the amount of typhoid infection in Massachusetts to the minimum attained in large foreign cities, and ultimately accomplish its complete eradication.

THE EXPECTATION OF LIFE AMONG THE FEEBLE-MINDED.

THE natural law of the survival of the fittest is exemplified in the results of an investigation into the relative mortality of mental defectives to the normal made by L. Pierce Clark and W. L. Stowell, published in the *New York Medical Journal* for Feb. 22, 1913. As the investigation of both classes was conducted during the same time, at the same place and under the same circumstances, the management and service being identical in both cases, the results are necessarily of unusual value. This is all the more the case as the numbers are sufficiently large to warrant one in eliminating the factor of coincidence which is so often the real explanation of seemingly striking statistical proofs. These observations were made upon 4000 feeble-minded with 8000 normals as controls. For a period of nine years the death-rate among the idiots was 19.6. Among the higher grades of mental defectives, those which the observers call simply the "feeble-minded," and which presumably in-

clude the "moron" type alone, the death-rate was only 6.5. But even this high grade class exceeded the normal in their death-rate by almost 50%, for the latter show the low rate of 3.38%. Thus the mortality rate increases with the descent in mentality. The deaths are due to a great multiplicity of causes, but pneumonia and tuberculosis seem to head the list. Sudden deaths and deaths after a very short illness often occur. The Mongolian idiots especially seem to have a habit of dying without warning. But this high mortality rate seems to occur chiefly in childhood. It lessens until the "teens" are reached, and after the age of twenty the feeble-minded in institutions have a better chance of life than the normal individual. This is probably due to the protection which the special care of institutions affords against the risk of accidents, infections and fatigue, which the individual coming in contact with the outside world constantly encounters. While nature aids us in the elimination of the unfit during childhood, those who survive remain with us as a constant source of worry and trouble. Our duty to society and to the race demands that we segregate these survivals so that danger of propagating their kind is reduced to a minimum. At the same time the dictates of humanity demand that this be done in a way that will cause the least unhappiness to the unfortunate victims.

INFANT MORTALITY IN THE STATE OF NEW YORK.

The death-rate among infants reflects in a very striking manner the good effect of preventive measures undertaken by public and private agencies, as well as the disastrous results from neglect of such measures. During the past decade a very gratifying advance in the reduction of infant mortality has been made in New York, as shown by the records of the State Health Department. No longer ago than 1904 the proportion of deaths under one year to 1000 births of living children was 151.0, while in 1912 it was 108.9. By 1907 this proportion had been reduced to 142.9, and by 1909 to 128.6. In 1910 it remained practically the same, but in 1911 it fell to 113.5, and in 1912, as mentioned, to 108.9. It is a significant fact that while the rate last year was 108.9 in the State as a whole, in the city of New York, notwithstanding its vast tenement-house population and overcrowded conditions, it was three points lower than this, 105, testifying to the value of the special efforts on the part of the Health Department and various benevolent organizations, working in co-operation for the protection of infant life. It should be noted, however, that in that city a considerably larger per capita appropriation is made for the work of the health authorities than in most of the other cities and towns of the State, while, as truthfully asserted by its officials, the State Health Department receives an appropriation far too small to make its efforts what they should be to assist local health officers in their work. The moral, of course, is that the Legislature and the governing boards of municipalities and towns should wake up to their responsibilities in this matter, and while too much cannot be expected at once, it would seem probable that the influence of the good work which has been accomplished in New York City will be felt at Albany and gradually have its effect throughout the State. One result, for instance, is the recommendation in the recent report of Governor Sulzer's Public Health Commission, that each city with 10,000 inhabitants, and having an industrial population should have one such infant welfare station, and that larger cities with an industrial population should have one such station for approximately each 2,000 inhabitants. Many of the cities besides New York have already accomplished much in this direction, as is shown by the general decline in infant mortality in the State which has been referred to. During the present year there is reason to hope that, with the more general and co-operative efforts of the various agencies now enlisted in the work of prevention, this mortality will be still further reduced. The country baby naturally has the advantage over the city baby, and the latter, therefore, stands in urgent need of all that can be done for improving its chances of life and health. In 1912, while the rural general death-rate in New York State was .6 per cent. greater than the urban, the rural infant death-rate was 1 per cent. less than the urban.

MEDICAL NOTES.

Historical Medical Museum.—The Historical Medical Museum, organized by Mr. Henry S. Wellcome, which is to be opened in London towards the end of June next, will include some objects of exceptional historical medical interest.

An important exhibit in the science section will be a large collection of the original apparatus used by the famous Galvani in making his first experiments in Galvanism in the 18th century. A remarkable collection of votive offerings for health will be exhibited. The custom of presenting these offerings in cases of sickness is a very ancient one, and the collection that will be shown is probably the finest ever brought together. It will include Graeco-Roman votive offerings of special anatomical and pathological interest, in silver, bronze, marble and terra cotta, together with a number of similar objects used for the same purpose in medieval and modern times. Ancient microscopes and optical instruments gathered from all quarters of Europe will form another important feature, and a selection of surgical instruments used by famous surgeons when operating on historical personages is promised. The collection of amulets and charms connected with English folk medicine will be very complete, and will constitute an exhibit of more than ordinary interest. A fine collection of early medical medals and coins from the Graeco-Roman period, ancient manuscripts and early printed medical books will also be shown, together with many other objects of interest to medical and scientific men.

LONDON DEATH-RATES IN MARCH.—Statistics recently published show that the total death-rate of London for the month of March, 1913, was 18.5 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 22.7 in Shoreditch, a crowded eastern slum, and the lowest was 12.4 in Lewisham, a populous southern suburb.

A BRITISH CENTENARIAN.—Mrs. Margaret King, who died recently at Southport, England, is said to have been born on June 21, 1811, in Bristol. She was a niece of the poet, Robert Lovell.

BIRTH OF A GREEK PRINCESS.—Report from Athens, Greece, announces the birth of another daughter on May 4 to the new king and queen of the Hellenes.

IN THE INTEREST OF GOOD ROADS.—The following is a press despatch from Luray, Va., on May 5:—

"Physicians of Scott County, Virginia, have hit on a novel way of aiding in the coming election to commit the country to the authorization of a heavy bond issue for the building of good roads. They have announced that if the election goes adversely and the people of the county do not recognize the need for better highways they will be compelled to double their prices for professional services. The doctors contend that the inadequate and unsafe roads render travel dangerous to themselves and their horses and that their carriages are quickly ruined by the rough usage."

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—The ninth triennial Congress of American Physicians and Surgeons, and of its associated special societies, was held last week in Washington, D. C., under the presidency of Dr. William C. Gorgas. Full reports of the proceedings will be published in subsequent issues of the JOURNAL.

FOR A PUBLIC HEALTH DEPARTMENT.—Report from Washington, D. C., states that on May 6, President Wilson granted an interview, on the subject of the Owen bill for the establishment of a cabinet department of public health, to a representative joint delegation from the American Medical Association and the committee of one hundred on conservation of health of the American Academy of Sciences. The delegation consisted of Prof. Irving Fisher, Dr. A. Jacobi, Dr. G. H. Simmons, Dr. Harvey W. Wiley, Dr. Favill and Dr. John B. Murphy.

TRANSMISSION OF POLIOMYELITIS.—In the weekly report of the United States Public Health Service for May 2, Drs. Anderson and Frost report several unsuccessful experimental attempts to infect monkeys with poliomyelitis through the bite of *Stomoxys calcitrans*, but do not consider that this result is of more than negative importance.

COALITION OF TWO MEDICAL SCHOOLS.—It is announced that a coalition has been effected between the medical department of Willamette University, Salem, Ore., and the medical department of the University of Oregon, Portland, Ore. This amalgamation is to become operative at the close of the current academic year.

HENRY PHIPPS INSTITUTE IN PHILADELPHIA.—On Saturday of last week, May 10, was formally opened the new building of the Phipps Institute of the University of Pennsylvania, which is devoted to the comparative study of tuberculosis.

"The building was designed by Grosvenor Atterbury of New York City. The plan is somewhat in the form of the letter "H," two main wings projecting towards the south, and enclosing an areaway planted with shrubbery. The building from this side has a rather unusual appearance, because each story above the second is set back from the front sufficiently to afford adequate porch and deck room, so that light and air is not cut off by the porches from the story above. This side of the building, when the window-boxes are in place and vines growing over the numerous trellises, will have the appearance of hanging gardens. The patients will spend all of their time in these open-air pavilions, both winter and summer. The east wing is devoted to research rooms and laboratories."

The principal address at the opening exercises was by Dr. Hermann M. Biggs, of New York City. Addresses were made also by Dr. William H. Welch, of Johns Hopkins University; by Dr. Theobald Smith, of Harvard University; by Dr. Alfred Stenzel, of the University of Pennsylvania, and by Dr. S. Weir Mitchell, of Philadelphia.

BOSTON AND NEW ENGLAND.

President of City Hospital Trustees.—At a recent meeting of the board of trustees of the Boston City Hospital, Mr. A. Shuman was elected its president for the twenty-second consecutive year.

Recent Hospital Bequests.—The will of the late Emma L. Waitt, of Newton, Mass., which was filed last week in the Middlesex Registry of Probate, contains bequests of $5000 to the Newton Hospital and $1000 to the North End Dispensary and Hospital.

A Living Local Centenarian.—Ralph Butler, of Dorchester, Mass, who is said to have been born on May 5, 1813, at Farmington, Me., celebrated last week his supposed centennial anniversary. He has led an active and diversified life as a miner, builder and merchant, and attributes his continued good health to his frugality in eating, to his confirmed optimism, to his habit of rising at 5 a. m., and to his lifelong abstinence from tobacco and alcoholic beverages. It may perhaps be suggested that his optimism is rather the result of his good health than its cause.

Cholera Aboard the "Claverly."—The British freight steamer *Claverly*, with a 5000-ton cargo of general Oriental merchandize, was detained at quarantine on her arrival at the port of Boston last week, on account of a supposed death from Asiatic cholera which occurred aboard shortly after the vessel sailed from Calcutta, India, on March 13. On her voyage, the *Claverly* had touched at Colombo, Port Said, and Malta. The crew is composed of Malays and Lascars, and several suspicious cases of illness among them were rigidly investigated. Bacteriologic examinations, however, were entirely negative, and after fumigation, the vessel was allowed to dock.

Instructive District Nursing Association.—The recently published twenty-seventh annual report of the Boston Instructive District Nursing Association records the activities of that organization for the year ended Jan. 31, 1913. During this period 107,969 visits were made on 10,784 patients by 70 nurses. The work of the staff nurses and of the pupils has now been coördinated so that there is no duplication. There is urgent need of more funds to permit the employment of more nurses and the further amplification and systematic development of their work.

Worcester City Hospital.—The recently published forty-second annual report of the trustees of the City Hospital of Worcester, Mass., records the work of that institution for the year ended Nov. 30, 1912. During this period 4854 patients received 83,439 days' treatment in the hospital, 18,935 treatments were given in the out-patient department, and 917 patients were treated in the accident room. There were 457 visits made to the tuberculosis dispensary, where 147 new cases were treated. Seventeen nurses were graduated from the training school.

Plans of the Avon Home.—It is announced that the Avon Home, on Mt. Auburn Street, Cambridge, established in 1847 by a gift from James Huntington, is to be converted from a home "for children found destitute," to a Children's Hospital.

"The cost of changing the home into a hospital, assuming that ten beds are maintained, will be about $8000 annually; on the other hand a successful beginning may be made on as little as $3000 or $4000 for alterations, and at the moderate expense of $4000 or $5000 for maintenance. The plant then is to begin moderately,

but promptly, with the expectation that funds will be forthcoming for future enlargement. About one-half the money needed for alterations is already in hand, and the sum now needed for the first year is approximately $7000.

"In recent years, besides the thirty or forty children taken care of at the home, as many more have been boarded. Last year, however, 142 children were cared for and 937 children were otherwise aided."

BOSTON MORTALITY STATISTICS.—Cases reported to Board of Health for week ending May 6, 1913: Diphtheria, 35; scarlet fever, 35; typhoid fever, 3; smallpox, 0; measles, 201; tuberculosis, 76, of which 3 were non-residents. Death-rate for week ending May 6, 1913, 17.87.

TONSILLITIS EPIDEMIC IN CANTON.—There is at present prevalent in Canton, Mass., a town of about 4000 inhabitants, a considerable and serious epidemic of streptococcic tonsillitis. Within the past fortnight there have been reported 364 cases and 16 deaths of the infection. As in similar severe epidemics that have occurred in Boston and vicinity at this season for the past two years, there is a tendency to peritoneal metastasis of the tonsillar infection, and to its association with pneumonia, bronchitis, and erysipelas; and it is to these complications that the fatalities have been due. It is averred that all the infected patients took milk from the same dealer, and on this basis the Massachusetts State Board of Health has ordered all sales from his establishment suspended for the present, and has advised the pasteurization of all other supplies. Similar sporadic cases have appeared recently, however, in the neighboring town of Sharon, and in other outlying communities, and the theory of milk-borne infection is not as yet proved. At Canton, churches, schools, and other public buildings have been closed indefinitely. Incidentally it may be noted that this epidemic has coincided, as in other instances, with a period of unseasonably cold, and dusty weather, conditions favoring the spread of an air-borne infection.

NEW YORK.

APRIL DEATH-RATES.—The weekly reports of the Health Department show for April a reduction in the death-rate in the city of just one point from that of April last year. The mortality in the month of April represented an annual death-rate of 15.09, as against 16.79 in March and 16.09 in April, 1912. There was a gratifying decline in deaths from pneumonia, and for, perhaps, the first time on record the mortality from lobar pneumonia was smaller than that from bronchopneumonia. Among the diseases in which there was a diminished fatality were the following: The deaths from typhoid fever decreased from 5 in March to 3.25 in April; the weekly average from scarlet fever, from 20.75 to 18.5; from influenza, from 37.5 to 11; from acute bronchitis, from 19 to 14.75; from pneumonia from 196 to 115; from bronchopneumonia, from 147 to 124; from tuberculous meningitis, from 21.75 to 20.75; from cancer, from 87.5 to 85.5; from organic heart diseases, from 216.25 to 203.25; from appendicitis and perityphilis, from 14.5 to 11.75; from hernia and intestinal obstruction, from 12.5 to 11.5; from Bright's disease and acute nephritis, from 133.5 to 119.25; and from puerperal diseases, from 19 to 13.5. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from measles increased from 19.75 to 22; from diphtheria and croup, from 37.5 to 41; from pulmonary tuberculosis, from 200.75 to 201.75; from apoplexy and softening of the brain, from 19.75 to 20.25; and from cirrhosis of the liver, from 21.5 to 24.

TYPHOID IMMUNIZATION.—Typhoid immunization has now been practised by the City Health Department since the first of January. When a case of typhoid is reported immunization is offered, with the assent of the practitioner in charge, to members of the household. Three doses are administered, from 3 to 7 days apart, the first one containing 500 million bacteria in glycerin solution; the others, 1000 million each. Over 1200 injections have been given, to about 400 persons, with no serious reactions. In the most pronounced one recorded all the symptoms subsided within 48 hours, and there was no other ill effect. Among those immunized but one person was attacked with typhoid fever. This was a child already in the stage of incubation, who came down with the fever two days after the initial dose, and the course was exceptionally mild, an abortive form of the disease. It cannot be said that the disease here was possessed of little virulence, for two other children in the same family died from typhoid just before the culture was administered to the remaining members. In a family of eleven there were

two cases of typhoid fever, and immunization was offered to the other nine members. Eight accepted, and did not contract the disease, while the one who declined was attacked with it soon after. In other instances persons exposed to typhoid and refusing immunization became ill with it, while of all persons receiving it, the only one taking the disease has been the child mentioned. The typhoid incidence in the city has been low, and the opportunities for immunization comparatively few, but as the season advances the injections will necessarily be increased, with the increasing incidence of the disease, and it is expected that a reduction in the proportion of direct contact infections shown in previous years will take place. As it has been intimated that exacerbations of tuberculosis follow the employment of typhoid immunization, the department has decided not to inject the culture in the presence of manifest tubercular or other serious lesions until this question has been settled by further observation. As to tuberculosis in general, the von Pirquet tuberculin test, unless especially contra-indicated, is now being performed on every child attending the children's classes at the tuberculosis clinics of the department. This test (while of value when negative, in both adults and children), when positive, in the absence of a localized reaction, is regarded as of little or no service in adults; but in children under five years of age a positive reaction is of considerable diagnostic importance in a case presenting doubtful clinical symptoms.

KAISER MEMORIAL FUND.—The executive committee of the Kaiser Memorial Fund, which is being raised in commemoration of the 25th anniversary of the accession of William II to the German throne, has sent out circulars asking for subscriptions, the money to go toward the completion and equipment of the "Kaiser Wilhelm Pavilion," a building now in progress of erection as a part of the German Hospital and Dispensary in New York.

NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL.—The recently published forty-fifth annual report of the New York Orthopedic Dispensary and Hospital records the work of that institution for the calendar year 1912. During this period 6417 patients were treated, of whom 462 were in the City Hospital, 118 in the Country Branch, and the remainder out-patients.

Current Literature.

MEDICAL RECORD.

APRIL 26, 1913.

1. SCRIPTURE, E. W. *What is Psychanalysis?*
2. GUTMAN, J. *Gastralgia Nervosa and Its Differential Diagnosis.*
3. *RITTER, J. *The Albumin Analysis of the Sputum. Its Great Value as a Reliable and Positive Diagnostic Laboratory Method for Differentiating Pulmonary Tuberculosis from Other Pulmonary Diseases.*
4. M'KINNISS, C. R. *Epilepsy.*
5. FEDDE, B. A. *The Management of the Puerperium and Its Minor Abnormalities.*
6. AM ENDE, C. *Early Diagnosis of Tuberculosis, with Notes on Internal Antisepsis.*

3. Ritter is loud in his praises of albumin analysis of the sputum as a means of differentiating pulmonary tuberculosis from other pulmonary diseases. To 5 c.c. of sputum are added 5 c.c. of distilled water and 1 c.c. of glacial acetic acid. This is shaken occasionally for half an hour and then filtered, and the filtrate tested for albumin by Heller's test or the heat test or the ferrocyanide test. A single positive sputum finding is not pathognomonic, but a single negative albumin reaction rules out tuberculosis. A negative sputum for albumin is also microscopically negative for tubercle bacilli; in open cases both will be found in the sputum, in closed cases albumin but not bacilli. A positive albumin reaction is a sure indication of inflammatory invasion of the pulmonary parenchyma, hence the test is most valuable when the diagnosis lies between phthisis and simple bronchial catarrh, in which the lung substance is not involved. Albumin may be found in the sputum many months before tubercle bacilli can be demonstrated.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

APRIL 26, 1913.

1. PFAHLER, G. E. *Inoperable Primary Carcinoma of the Breast.*
2. BUERGER, L. *Intravesical Diagnosis and Treatment.*
3. BURROWS, W. F. *Operation, When Required, in All Common Rectal Diseases, Without General Anesthesia or Pain.*
4. BEERS, N. T. *A Single Case of Vitiligo.*
5. WIENER, A. *Orbital Cellulitis.*
6. GORDON, M. B. *Thyroid Medication in Children.*
7. KNAPP, M. I. *Newer Teachings of Diseases of the Gastro-intestinal Canal.*
8. *WILLIAMS, F. H. *Electricity in Rectal Diseases.*
9. NIBLETT, W. S. *Treatment of Tuberculous Bone Abscesses and Sinuses with Tuberculin.*
10. MASSEY, G. B. *Ointment in Granulating Wounds.*
11. GREENE, H. M. *Syphilis.*
12. DOUGLAS, C. J. *Morphine in General Practise.*

8. Williams sets forth the resources of electricity in the treatment of rectal diseases. Electrolysis, he says, is a safe and painless method of treating all cases of varicose internal hemorrhoids. There is no hemorrhage during or after treatment, and ulceration, stricture, fistulae and abscesses have never been observed as sequels. Cures are permanent. Weak and aged patients, who are unable to take a general anesthetic, stand electrolytic treatments admirably.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 3, 1913.

1. SUTTON, R. L. *Mycetoma in America.*
2. BUCHANAN, J. J. *Shattering of Femur with Extensive Compound Injury of Soft Parts; Recovery Without Operation with Useful Limb.*
3. RUBNER, M. *Modern Steam Sterilization.*
4. KRAMER, S. P. *A Possible Source of Danger in the Use of Antimeningitic Serum in Young Children.*
5. SLEYSTER, R. *The Criminal Physique. A Preliminary Report on the Physical Examination of One Thousand Five Hundred and Twenty-One Prisoners at the Wisconsin State Prison.*
6. CRAIG, C. F. *The Identity of Entameba Histolytica and Entameba Tetragena.*
7. GRINKER, J. *A New Method of Treating Neuralgia of the Trigeminus by the Injection of Alcohol into the Gasserian Ganglion.*
8. WALKINS, E. D. *Puzzling Gastro-intestinal Symptoms. Report of a Case.*
9. STEWART, J. C. *Benign Melanosis; a Supplementary Report.*
10. LEVIS, H. J. *An Eye Lesion Following Two Intravenous Injections of Salvarsan But Relieved by Its Further Use.*
11. LIKES, S. H., AND SCHOENRICH, H. *Meatotomy: a Simple Method.*
12. *Bacterial Vaccine Therapy: Its Indications and Limitations. Theoretical Considerations. (To be continued.)*

THE ARCHIVES OF INTERNAL MEDICINE.

MARCH, 1913.

1. *CECIL, R. L., AND LAMB, A. R. *Observations on the Complement Fixation Test for Syphilis with Cadaver Serum.*
2. *ROWNTREE, L. G., AND FITZ, R. *Studies of Renal Functions in Renal, Cardiorenal and Cardiac Diseases.*
3. MARINE, D., AND JOHNSEN, A. A. *Experimental Observations on the Effects of the Administration of Iodin in Three Cases of Thyroid Carcinoma (Two Human and One Canine.)*
4. *HOPKINS, A. H. *Concerning the Presence of Hemolysins in Stool Extracts.*
5. *AUSTIN, J. H., AND PEPPER, O. H. P. *Experimental Observations on the Coagulation of Oxalated Plasma, with a Study of Some Cases of Purpura.*
6. WELLER, C. V. *Primary Carcinoma of the Larger Bronchi. An Analysis of Ninety Cases with Regard to Pathology, Symptomatology and Diagnosis, and Report of a New Case.*
7. ERLANGER, J. *The Localization of Impulse Initiation and Conduction in the Heart.*

1. Cecil and Lamb discuss the reliability of the Wassermann reaction as applied to post-mortem sera and report their experience with the Noguchi modification on sera obtained after death. They find that in the testing of cadaver blood the use of the acetone insoluble residue of alcoholic antigen is preferable on theoretical and practical grounds to the pure alcoholic or aqueous extracts, for the reason that less anti-complementary substance is introduced. The serum to be tested should be collected from the cadaver as soon as possible after death, and the test performed at the earliest possible date. Infected and decomposed serum from either the cadaver or the living subject is not suitable for the complement finding test. In their series of 56 cases, the writers found that the Noguchi modification gave very reliable results.

2. Rowntree and Fitz report on recent studies of renal function in heart and kidney diseases. They find that the quantity of urine excreted is of little value in determining the condition of renal function. Specific gravity is less reliable, but the functional condition of the kidney can be determined much more accurately by the use of the functional tests than through ordinary clinical studies alone. The phthalein test is of great diagnostic and prognostic value, for prognosis more valuable than any other single test. In cardiorenal disease it is of value for determining the relative responsibility of the heart or kidney for the clinical condition. The lactose test is of great value in determining the existence of abnormal renal function. The salt test, considered alone, is of no value, and the potassium iodide test is of little value diagnostically or prognostically. Marked accumulation in the blood of incoagulable nitrogen in cases of nephritis is of considerable prognostic value. It is possible in cases of cardiorenal disease with varying degrees of chronic passive congestion and nephritis to determine which factor is of greater importance in producing the clinical picture. This can be done most readily by repeated phthalein tests. It is also possible to determine the presence or absence of impairment of renal function in cases in which clinically nephritis is suggested.

4. Hopkins undertook a large number of experiments to discover if possible whether extracts of stools from cases of progressive pernicious anemia contain hemolyzing substances not found in normal stools nor in stools from other diseases. His results were so inconstant that he considers the test unreliable, both for clinical diagnosis and for throwing light on etiology.

5. Austin and Pepper studied the various methods of determining the coagulation properties of the blood plasma of purpura, and the principles of coagulation in general. They find that a solution of hemolyzed blood cells is the most readily prepared and active thromboplastic solution. A delay in coagulation time of oxalated plasmas occurs on heating or standing. This is due to the formation of antithrombin and to the union of antithrombin with prothrombin. The coagulation time in such plasmas is greatly hastened by the addition of thromboplastic solution. The presence of hemoglobin in a plasma may be a source of error in the determination of fibrinogen. No method of study has yet offered a satisfactory explanation of purpura. [L. D. C.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

MARCH, 1913.

1. *HASTINGS, T. W., AND BOEHM, E. *A Study of Cultures from Sputum and Blood in Lobar Pneumonia.*
2. *PRATT, J. H., AND MURPHY, F. T. *Pancreatic Transplantations in the Spleen.*
3. EBELING, A. H. *The Permanent Life of Connective Tissue Outside of the Organism.*
4. WHIPPLE, G. H., STONE, H. B., AND BERNHAM, B. M. *Intestinal Obstruction. I. A Study of a Toxic Substance Produced in Closed Duodenal Loops.*
5. WHIPPLE, G. H., STONE, H. B., AND BERNHEIM, B. M. *Intestinal Obstructions. II. A Study of the Toxic Substance Produced by the Mucosa of Closed Duodenal Loops.*
6. *ROWLEY-LAWSON, M. *Extracellular Relation of the Malarial Parasite to the Red Corpuscle, and Its Method of Securing Attachment to the External Surface of the Red Corpuscle.*
7. ROBERTSON, T., BRADFORD, AND BURNETT, T. C. *The Influence of Lecithin and Cholesterin upon the Growth of Tumors.*
8. WOLLSTEIN, M., AND MELTZER, S. J. *Pneumonic Lesions Made by Intrabronchial Insufflation of Non-Virulent Pneumococci.*
9. FRASER, J. *An Experimental Study of Bone and Joint Tuberculosis.*

1. Hastings and Boehm studied 32 cases of pneumonia. Cultures were taken from both the blood and sputum. In nine cases the pneumococcus was isolated from both the blood and the sputum and five of these patients died. In twenty-one cases the blood cultures were negative. In two cases the streptococcus hemolysins was found in the blood.

2. Pratt and Murphy extirpated the pancreas of a dog and implanted some pancreatic tissue in the spleen. This pancreatic tissue lived and functionated four months. The small nodule of pancreatic tissue without demonstrable island of Langerhans prevented the development of diabetes, although carbohydrate tolerance was low.

6. Rowley-Lawson has continued her study of the relation of the malarial parasite to the red blood corpuscle. She believes that the malarial parasite is extra-cellular during its entire cycle. Illustrations are offered to show that the parasite secures its attachment to the outside of the red corpuscle by means of filamentous pseudopodia of two kinds. Rowley-Lawson believes that it is the pseudopodia encircling mounds of corpuscular substance that give the characteristic ring-form appearance. She has found no evidence of conjugation as described by Craig. The article is profusely illustrated. [R. I. L.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 13. MARCH 27, 1913.

1. VULPIUS, O. *The Treatment of Congenital Club Foot.*
2. HÜRTHLE, K. *Promotion of the Blood Stream Through the Arterial Pulse.*
3. LEO, H. *The Action of Saturated Aqueous Camphor Solution.*
4. BIBERFELD, J. *The New Drugs of the Past Year.*
5. MÖLLERS, B. *Serologic Investigations in Lepers.*
6. MÜHSAM, R. *Surgical Experiences in the German Red Cross Hospital in Belgrade.*
7. SCHLIEP, L. *Gunshot Wounds of the Joints.*
8. LOTSCH. *The Action of the Pointed Projectile.*
9. FREUND, W. A. *Emphysema.*
10. SALKOWSKI, E. *Urinalysis.*
11. SCHÖNE, C. *The Practical Significance of Blood-Pressure Measurement in Diphtheria.*
12. COHN, M. *The Vermiform Appendix in the Roentgen Picture.*
13. LOOSE, O., AND STEFFEN, E. *Corpora Amylacea in the Endoscopic Finding of the Posterior Urethra.*
14. HERRINS, M. *The Present Status of the Treatment of Arteriosclerosis.*
15. PRINZING. *Critical Observations on the Problem of the Birth Decline in Germany.*
16. FINCKH, L. *Medicine and Doctors in Recent Literature.*

No. 14. APRIL 3, 1913.

1. EDINGER, L. *The Function of the Cerebellum.*
2. BÁRANY, R. *Localization in the Cortex of the Cerebellar Hemispheres.*
3. UHLENHUTH, P., AND EMMERICH, E. *The Behavior of the Rabbit's Testicle in Experimental Trypanosome and Spirochete Infection.*
4. ROTHE, E., AND BIERBAUM, K. *The Experimental Production of Tuberculous Antibodies in the Cow, with a Contribution to Tuberculous Immunization.*
5. *FUNDNER. *The Influence of Increase of Intra-Abdominal Pressure, and the State of Fullness of the Stomach, on the Blood Pressure.*
6. PLEHN. *A Case of Heart-Block with Adams-Stokes Symptom Complex.*
7. HUBER. *Spinal Cord Changes in Spinal Progressive Muscle Atrophy.*
8. RICHARTZ, H. L. *Carbohydrate Cures in Diabetes.*
9. BARITZKI. *Anesthetization of the Brachial Plexus by Kulenkampff's Method.*
10. RIECK, A. *The Treatment of Excessively Severe Menstrual Hemorrhages.*
11. *MEHLISS. *Trivalin.*
12. POLLAND, R. *The Treatment of Gonorrheal Processes with Tanargentan Sticks.*
13. HERZ, P. *Moist Bandages and Moist Dressings in Acute Diseases.*
14. SCHAEFER, F. *A Contribution to the Action of Mercury Taken by Mouth.*
15. SCHWALBE, E. *Medical High School Instruction.*
16. KRUSINS, F. F. *Ophthalmologic Studies in German East Africa.*
17. DESSANER, F. *The Technic of Roentgen Kinematography.*
18. GROEDEL, F. M. *Reply to the Above.*

5. From a series of human experimental studies Fundner concludes that in heart disturbances of digestive nature it is not simply a question of mechanic influences on the circulation, but that vagus and vasomotor reflex processes also play an important part.

11. From clinical tests of trivalin,—a combination of morphine, caffeine, and cocaine valerianate,—Mehliss believes that it is an efficient, detoxicated substitute for morphine in all cases as an anodyne, without influence on the heart, respiration, or sensorium. [R. M. G.]

No. 15. APRIL 10, 1913.

1. GROBER, *General Treatment of Infectious Diseases.*
2. TACHAW, H. *The Sugar Content of the Blood.*
3. HEUBNER, W. *The Chemotherapy of Tuberculosis with Gold.*
4. LEO, H. *The Action of Camphor Water.*
5. MERREM. *Appendicitis and Paratyphoid B.*
6. VONN GIERKE, E. *Autolytic Properties of Guinea-Pig Serum.*
7. LADE, F. *Experiences with the Hermann-Perutz Syphilis Reaction in Six Hundred Cases.*
8. VULPIUS, O. *The New Bandage Treatment of Scoliosis According to Abbott.*
9. BIESALSKI, K. *Spastic Paralysis in Childhood and Its Treatment.*
10. KEINLEIN, H. *The Etiology and Treatment of Genu Valgum.*
11. MAASS, H. *Congenital Forearm Synostosis.*
12. HERZENBERG, R. *So-Called Navel Stones.*
13. BLEY. *A New Instrument for Opening Hard Bandages, Especially Plaster Bandages.*
14. MAMLOCK, G. *The History of Medicine a Hundred Years Ago.*
15. VELDE. *A Journey to Corfu and Levkas.*
16. KRUSINS, F. F. *Ophthalmologic Studies in German East Africa.*
17. BÖNNIGER, M. *The Pharmacologic Foundations of Bromotherapy.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 13. APRIL 1, 1913.

1. *SCHLIMPERT, H., AND HENDRY, J. *Abderhalden's Pregnancy Reaction.*
2. FREUND, R., AND BRAHM, C. *Diagnosis of Pregnancy by the Optic Method and Dialysis.*
3. LOEWI, O. *Dependence of Experimental Diabetic Disturbances on the Kation Mixture.*
4. VULPIUS, O. *Arthrodesis of the Hip.*
5. STERN, C. *The Method of Using Salvarsan and Neosalvarsan; Infusion or Injection?*
6. HOFFMANN, R. *The Anovarthyroid Serum.*
7. WALTHER, H. *Synthetic Hydrastanin-Bayer, a Substitute for Extr. Hydrastis Canadensis Fluidium.*
8. DESSANER, F. *Studies of the Hard Roentgen Rays with Reference to Penetration.*
9. EMMERICH, M. *Rubidium in the Spring of the Adelholzen Bath in Oberbayern.*
10. DECKER. *A Practical Artificial Bandage for the Anus.*

11. Freund, R. *History of the Sero-Diagnosis of Pregnancy.*
12. Abderhalden, E. *Remarks on the "History of Sero-Diagnosis of Pregnancy" by Freund.*
13. Lindig, P. *Action of Serum Ferments in Pregnancy and in Cases of Tumor.*

1. The writers report results on 316 cases in which they tried Abderhalden's dialysis reaction for pregnancy. The outcome of their earlier tests was unsatisfactory and this was shown later to be due to errors of technic, which were then remedied. The last 79 tests made with improved technic on 40 pregnant women and on 39 control cases showed not a single failure of the reaction. They consider the reaction to be specific for pregnancy when correctly performed according to Abderhalden's more recent methods. The technic and the sources of error are fully described. [G. C. S.]

Wiener Klinische Wochenschrift.

No. 14. April 3, 1913.

1. Obersteiner, H. *Pathological Conditions in the Central Nervous System.*
2. *Schenk, F. *Serum Diagnosis of Malignant Tumors.*
3. Arzt, L., and Kerl, W. *Biological Action of Radium.*
4. Glück, A. *Experimental Investigation on Idiosyncrasy.*
5. Hatiegan, J. *The Clinical Significance of the Schulze Oxidate Reaction.*
6. Bauwitz, F. *Means of Removing Small Amounts at a Time of Gases and Fluids Containing Emanations.*

2. Various authors have attempted with more or less success the complement binding reaction in the serum diagnosis of malignant tumors. Dungern seems to have found a method of practical value.

Extract of tumors,—watery, ether and alcoholic,—proved of inconstant and non-standardizable values. This led Dungern to the use of extracts of normal human blood serum, *e.g.* alcoholic and acetone extracts, made by adding to 1 part serum 20 parts acetone and allowing to stand three days, after which the acetone was filtered off and boiled down at 37° moist heat. The concentrated remainder dissolved in one-tenth its volume and mixed with normal salt 1 : 5. Reaction dose 0.6, 0.4, 0.2.

These extracts reacted with most carcinoma sera, but with only a few leuetic tumors was it positive. By the addition of NaOH on heating the serum 93% gave a typical positive reaction. With the smaller doses benign tumors gave a positive reaction, with large doses became negative. It seems that the difference between malignant and benign tumors in this regard is a quantitative one.

It appears, therefore, that the method of Dungern may be further developed into a reaction of practical value, and may lead to a standardizable reaction. [F. S. K.]

Archiv für Klinische Chirurgie.

Vol. 100. Part 4.

25. *Katzenstein, M. *Causation of Gastric Ulcer. I. The Resistance of Living Tissue to Digestion. (To be continued.)*
26. *Henschen, K. *Nephropexy by Means of a Transplanted Sling of Fascia.*
27. Sasse, F. *Choledochoduodenostomy.*
28. Schepelmann, E. *Lung Surgery in Animals.*
29. Jeger, E., and Israel, W. *Substitution of the Transplanted External Jugular for a Portion of the Vena Cava in Animals.*
30. *Hadda, S. *Whitehead's Operation for Hemorrhoids.*
31. Miyouchi, K. *The Frequency of Varices of the Lower Extremity in the Japanese and the Results of Some Operated Cases.*
32. Bernstein, P. *The Theory of Hernia.*
33. Dobbertin. *Direct Permanent Drainage of Chronic Ascites Through the Saphenous Vein into the Blood Stream.*
34. Lucas, H. *Free Plastics on the Fascia Lata.*
35. Goto, S. *A Rare Case of Teratoma of the Upper Jaw.*
36. Uffreduzzi, O. *Pathology of Undescended Testicle. (To be continued.)*
37. *Minor Communications.*
    1. Idzumi, G. *A Case of Primary Carcinoma of the Liver in Infancy.*
    2. Toida, R. *A Case of Large Congenital Hour-Glass Gall-Bladder.*

25. In the first instalment of his work on the formation of gastric ulcer, Katzenstein takes up the underlying principle of auto-digestion. He finds that healthy, well-nourished tissue, as, for example, a section of lower intestine planted in the stomach, will be digested, whereas stomach and duodenum will not. Digestion of these implanted tissues is hindered by a diet which lessens the secretion of gastric juice, and by injections of atropine.

26. Henschen describes a new method for fixation of the kidney. A piece of fascia lata 20 by 15 cm. is stripped from the thigh and sutured about the middle and lowest thirds of the kidney so as to form an extra capsule. Other sutures are placed through this and fastened to neighboring muscles and fasciae to anchor the organ. Henschen seems to have done only one case by this method, but in this case there was no sloughing of the fascial sling.

30. Hadda's article is an exposition of the technic and advantages of Whitehead's operation for hemorrhoids. He takes up the objections to the operation, as stated by Gant, and answers them in a way very favorable to the operation. From experience with 223 cases, he concludes that the percentage of cures is greater and the percentage of recurrences less than after the various other operations in common use. [G. G. S.]

Deutsche Zeitschrift für Chirurgie.

Band 121. Heft 1-4. February, 1913.

1. Ewald, P. *The Causes of Knock-Knee and Flat-Foot.*
2. Cade, A., and Leriche, R. *Clinical, Pathogenetic, and Therapeutic Studies on the Gastric Crises in Tabes Dorsalis.*
3. Greene, O. *The Modern Bardenheuer Extension Treatment in Comparison with the Steinmann Nail Extension.*
4. Pólya, E. *Jejuno-colic and Gastro-colic Fistula after Gastro-enterostomy.*
5. Lanenstein, C. *I. Gunshot Injury of the Cerebrum by a 7-mm. Bullet, without Important Consequences. II. Crush of the Trunk, with Intraperitoneal Rupture of the Bladder.*
6. Lerda, G. *Contribution to Complete Plastic of the Cheek.*
7. Keppler, W. *The Bloody Reduction of Fractures in Poor Position.*
8. Molineus. *Clavicular Plastic from the Spine of the Scapula.*
9. Ernst, F., and Erkes, F. *Reply to the Observations of Dr. Rousseau.*
10. Greene, O. *A Contribution on Subcalcanean Dislocation of the Foot.*
11. Greene, O. *A Case of Isolated Fracture of the Tarsal Scaphoid.*
12. Eguchi, T. *The Knowledge of Traumatic Epilepsy after Head Injuries in the Russo-Japanese War.*
13. Gergő, E. *Subcutaneous Emphysema after Laparotomies.*
14. *Neu, H. *Effect of Roentgen Rays in Surgical Tuberculosis.*

15. Delfino, E. A. *A Peripancreatic Cyst Arising Between the Layers of the Transverse Mesocolon.*
16. zur Verth, M., and Scheele, K. *Plastic Induration of the Penis.*
17. Pfister, E. *Contribution to the Histology of Egyptian Vesical Calculi.*
18. Koga, G. *The Treatment of Spontaneous Gangrene of the Extremities.*
19. Boehm, C. *Cases of Stab-Wounds of the Heart.*
20. Schottländer, E. *An Interesting Case of Sarcoma of the Upper Jaw.*

14. Neu, in a thesis which received a prize from the medical faculty at Bonn, presents a critical review of the Roentgen therapy of surgical tuberculosis on the basis of previous experience as recorded in the literature, from which he cites 44 references. [R. M. G.]

Revue de Chirurgie.

March, 1913.

1. *Gosse, M., and Dupuich, M. *Cancer of the Tongue in Young Subjects.*
2. Cotte, G., and Alamartine, H. *Inflammatory Tuberculosis: Its Surgical Manifestations.*
3. *Reganult, J., and Bourrut-Lacouture. *Professional Aneurysm of the Superficial Palmar Arch.*
4. Chauvin, E., and Oeconomos, S. N. *Researches on the Nutrition of Anesthetized and Operated Patients.*
5. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum. (Continued.)*

1. The authors report a case of cancer of the tongue in a man of 22, and collect from the literature 30 similar cases in persons not over 30 years of age. Of these only 8 were men. Syphilis is considered a much more important predisposing cause than tobacco.

3. The authors report a case of aneurysm of the superficial palmar arch, and collect from the literature 26 similar cases, in which the condition was supposedly due to trauma of occupation. [R. M. G.]

April, 1913.

1. *Soubeyran, P., and Rives, A. *Recent Fractures of the Os Calcis.*
2. *Mocquot, P. *Hemorrhages from Polyps of the Rectum.*
3. *Delore, X., and Arnaud, L. *Burns of the Stomach Following the Ingestion of Acids.*
4. *Alamartine, H. *The Actual Technic of Operations for Goitres.*
5. Solieri, S. *Epigastric Pain in Appendicitis.*
6. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum.*

1. The authors present an admirably complete study and classification of fractures of the os calcis.

2. Mocquot reports a case of hemorrhage from a rectal polyp in a girl of twelve, and concludes that such hemorrhages from pendunculated adenomata come from the tumor itself, not from the adjacent mucous membrane; and that the hemorrhage is due to intermittent torsion of the pedicle.

3. The authors report three cases of burns of the stomach from the ingestion of mineral acids, and discuss treatment.

4. Alamartine presents a valuable and exhaustive study of the technic of thyroid operations. [R. M. G.]

Il Policlinico.

January, 1913.

Medical Section.

1. Fugoni, C. *Studies on the Carotid Glands of Luschka.*
2. *Jona, G. *The Hemolytic Icterus of Tuberculosis.*
3. Marcora, F. *A Rare Tumor of the Gall Bladder.*
4. Barberio, M. *A Rare Case of Cystadenoma of the Extrahepatic Biliary Tract.*

2. Jona describes five cases of jaundice associated with tuberculous conditions, and discusses the literature of "the hemolytic icterus of tuberculosis." These cases do not show choluria and the feces are highly colored. This acholuric hemolytic icterus is a rare syndrome. It may be temporary, chronic or terminal, most often the latter. [L. D. C.]

Surgical Section.

1. Gazzotti, L. G. *Experimental Contribution to the Study of Infibulation. (Conclusion.)*
2. Ghillini, C. *The Pathogenesis of Talipes Valgus.*
3. *Pignati, A. *Further Researches on the Process of Cure of Wounds of the Arteries, and on the Experimental Reproduction of Traumatic Aneurysms.*

3. Pignati concludes that longitudinal arterial wounds, treated with suture, heal with the formation of a cicatrix, which, in the greater number of cases, is capable of maintaining intact the function of the vessel. These scars consist chiefly of connective tissue, with very little regeneration of vascular elements. The experimental reproduction of traumatic aneurysms is found to be possible. [R. M. G.]

February, 1913.

Medical Section.

1. Fugoni, C. *Studies on the Carotid Glands of Luschka.*
2. Foscarini, R. *A Case of Secondary Pneumococcus Peritonitis with Subsequent Abscess of the Spleen.*
3. Mazzitelli, P. *Concerning a Case of Leishman's Infantile Anemia from Monte San Biagio in the Province of Caserta.*
4. *Maiolo, B. *A Comparative Study of the Clinical Methods for the Quantitative Estimation of Albumin in the Urine and in Pathologic Fluids.*

4. Mariolo made quantitative estimation of albumin in urine and in pleural and peritoneal effusions for the purpose of comparing the methods of Esbach, Tsonchija and Aufrecht. All three methods were employed in each case, and the fluids tested varied in temperature, acidity and dilution. He finds that none of the methods under examination is exact and that the discrepancies are considerable. The methods of Esbach and Tsonchija are strongly affected by temperature and somewhat by density. The amount of precipitate is inversely proportional to the amount of heat. Of the three methods, that of Aufrecht is the least inexact, especially in urine work. Of the other two, that of Tsonchija is slightly more accurate for pathologic fluids. [L. D. C.]

Surgical Section.

1. Alessandri, R., and Chiavaro, A. *Resection of Three-Quarters of the Mandible by the Oral Route, and a New Method of Definitive Mandibular Prosthesis.*
2. Putzu, F. *Contribution to the Study of Hernia of the Bladder.*
3. Fasano, M. *Primary Muscular Sarcoma, and Myomectomy.*
4. *Leotta, N. *Obliteration of the Mesenteric Vessels. (Continued.)*

4. Leotta reports a further series of nine operations on dogs in his experimental researches and clinical considerations on the above question. [R. M. G.]

Miscellany.

UNITED STATES CIVIL-SERVICE EXAMINATION.

PHYSICIAN (MALE).

June 4, 1913.

The United States Civil Service Commission invites attention to the fact that among the vacancies to be filled as a result of the open competitive examination for physician, for men only, to be held on June 4, 1913, it is expected to fill one in this position at $150 a month, for service in the Insane Asylum at Ancon, Canal Zone, for which an unmarried man is desired.

The Isthmian Canal Commission states that the appointee to the position mentioned above must be experienced in the treatment of the insane, and that one without this experience cannot be used.

Issued May 5, 1913.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MAY 3, 1913.

CLIFFORD, A. B., passed assistant surgeon. Ordered to Naval Medical School, Washington, D. C.

WARNER, R. A., passed assistant surgeon: Detached from YANKTON and ordered home, wait orders.

GRADY, RICHARD, dental surgeon. Commissioned a dental surgeon in the Navy, for duty at Naval Academy, Annapolis, Md., from March 4, 1913.

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The regular meeting of the New England Hospital Medical Society will be held in the Kensington Building, May 15, at 7.30 p. m. Paper, "The Use of Human Serum in Pregnancy," Dr. Olga Leary.

MARGARET L. NOYES, M.D., *Secretary.*

APPOINTMENT.

DR. CHARLES FAIRBANK PAINTER, professor of orthopedic surgery in the Tufts Medical School, has been appointed dean of the Tufts medical and dental faculties.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Pediatric Society, Twenty-fourth Session. Vol. xxiv.

A National Department of Health and the National League for Medical Freedom: or Organized Medicine vs. Organized Quackery, by William J. Robinson, M.D., Reprint.

RECENT DEATHS.

DR. GEORGE EDMUND STACKPOLE, of Malden, Mass., who died on April 22 in Brookline, Mass., was born at Parsonsfield, Me., in 1842. He received the degree of M.D. in 1870 from the Harvard Medical School, and subsequently practised his profession in Malden until his retirement in 1907. He was a Fellow of The Massachusetts Medical Society.

DR. JAMES VAN BRAKLE, who had practised for many years in Brooklyn, died at his home at Forest Hills, Long Island, on April 14, at the age of 85 years. He was graduated from the New York University Medical School in 1865.

DR. PARLEY H. JOHNSON, of Adams, Jefferson County, N. Y., died on April 16, at the age of 73 years. He was graduated from the College of Physicians and Surgeons, New York, in 1865.

DR. J. LESTER CARNEY, of Brooklyn, N. Y., died on April 22, at the age of 63 years. He was graduated from the Long Island College Hospital in 1888.

DR. DAVID COGGIN, who died on May 7 at Salem, Mass., was born in 1843. He received the degree of M.D. in 1868 from Harvard, and that of A.M. (Hon.) from Dartmouth in 1878. He practised his profession in Salem for over forty years, and during that time was in charge of the ophthalmologic and otologic department of the Salem Hospital. He was a retired Fellow of The Massachusetts Medical Society. He is survived by his widow, by two daughters and by one son.

DR. LOUIS ADOLPHUS DUHRING, who died last week at Philadelphia, was born in that city on Dec. 23, 1845. He received the degree of M.D., in 1867 from the University of Pennsylvania, and after serving as resident physician at the Philadelphia Hospital, studied dermatology for two years abroad. Returning to this country in 1870, he opened a dispensary for the treatment of skin diseases in Philadelphia, of which he was physician until 1880, and since that time consulting physician. He was clinical lecturer on diseases of the skin from 1871 to 1876, and since 1876 professor of dermatology at the University of Pennsylvania. He was the author of several well known works on dermatology, and a member of many medical societies. He was not married.

DR. ALICE GRAHAM, of Kansas City, Mo., who died on May 3, was born in 1860. She was founder of the Mercy Hospital for crippled children, Kansas City.

DR. GEORGE HANCOCK INGALLS, who died last week in East Kingston, N. H., was born at Canterbury, N. H., in 1860. He received the degree of M.D. in 1885 from the University of Vermont. After settling for a time at Belmont, N. H., he removed in 1893 to Jamaica Plain, Mass., where he continued active in the practise of his profession until his retirement in Nov., 1912. He served on the staff of the Faulkner Hospital, and was a member of the American Medical Association, the Massachusetts Medical Society, the Boston Clinical Club, and the West Roxbury Medical Club. He is survived by his widow.

DR. FRANCIS PARKER KINNICUT, who died in New York City on May 2, was born at Worcester, Mass., on July 13, 1846. He received the degree of A.B. from Harvard in 1868, and in 1871 that of M.D. from the College of Physicians and Surgeons, New York. He was physician to the Presbyterian Hospital, and consulting physician to St. Luke's Hospital, the Woman's Hospital, Babies' Hospital, and the Hospital for Ruptured and Crippled Children, New York. Since 1893 he had been professor of clinical medicine in the College of Physicians and Surgeons, and in 1906 to 1907 was president of the Association of American Physicians.

DR. GEORGE HERMAN POWERS, of San Francisco, Cal., who died recently at Detroit, Mich., was born in Boston on June 13, 1840. He received the degree of A. B. in 1861 from Harvard University, and that of M.D. in 1865. During the Civil War he served as assistant surgeon of the 117th Massachusetts Regiment. In 1866 he settled at San Francisco, where he soon became professor of ophthalmology and otology in the University of California, a position which he retained until the time of his death. He is survived by his widow, by two daughters, and by two sons, the latter both physicians.

DR. PATRICK J. TIMMINS, who died on May 14 at South Boston, was born in County Fermanagh, Ireland, on Feb. 28, 1851. After receiving his early education at St. McCartan's Seminary, Monaghan, he migrated to the United States in 1871, and for several years taught at Holy Cross, Worcester, Mass., and at St. Francis Xavier College in New York. In 1878 he received the degree of M. D. from Georgetown University, and subsequently served as resident physician at the Children's Hospital, Washington, D.C. In 1880 he settled at Troy, N. Y., and later removed to Malden, Mass., and to South Boston. He was president of the South Boston Medical Society. He is survived by one son, also a physician.

JOHNS HOPKINS HOSPITAL
MAY 6 1913
Library

Original Articles.

TREATMENT OF LARYNGEAL STENOSIS FOLLOWING DIPHTHERIA.*

BY D. L. RICHARDSON, M.D., PROVIDENCE, R. I.

THE treatment of stenosis of the larynx, due to any cause whatever, is a very perplexing problem. The larynx is a very constricted portion of the respiratory tract, and this constriction may be further reduced or quite closed by the movements of the vocal cords. Thus it does not require a very marked inflammatory or hypertrophic process at this situation to seriously interfere or quite obstruct the movement of air through it. The treatment of a pathological process in this situation is difficult enough owing to the inaccessibility of the organ, but since even temporary total obstruction must at the same time be avoided, treatment indeed becomes a difficult task.

The purpose of this paper is to deal only with stenosis due to a previous attack of an acute inflammatory process, usually diphtheria.

I shall first review briefly the pathology of the acute process and follow with the factors which lead up to the chronic stenosis which sometimes follows.

The local pathology caused by the Klebs-Loeffler bacillus is briefly as follows: The organisms multiply in the secretions which bathe the throat. The toxic products set up an inflammatory condition, consisting of redness and edema of the tissues. This is more or less rapidly followed by the formation of a pseudo-membrane. This membrane consists of fibrin, degenerated epithelium and leucocytes, and penetrates more or less deeply into the underlying tissues. Its color depends upon the amount of blood pigment incorporated in it. If this pseudo-membrane is forcibly removed more or less capillary bleeding ensues, but only superficial epithelial layers are removed. With the formation of membrane, the underlying tissues become more congested and edematous, until the fauces, larynx or nares are nearly or quite obstructed. When the membrane separates during recovery, ulceration and abscess formation are very rare. The tissues are edematous and red, but the mucous membrane is intact.

This process, as observed in the throat, where it can best be observed, subsides quite rapidly. The membrane cleaves off and the swelling, which is chiefly due to edema, disappears quite rapidly. The underlying mucosa returns to normal, rarely suffering any ulceration. If ulceration does take place, it is superficial and due to the forcible removal of the pseudo-membrane and such areas as are secondarily covered by an exudate due to other organisms.

Reasoning by analogy, it would appear that the mucosa of the larynx should likewise regain a normal condition rapidly unless it were further injured by operative means to overcome the temporary obstruction of the acute process. The means of relief are either intubation or tracheotomy. That these operative procedures are not a great menace to the larynx is shown by the fact that only from one to three per cent. of laryngeal diphtheria cases are left with serious subsequent stenosis. I doubt whether there is another inflammatory process of like intensity, save diphtheria, which would not be followed by a much higher percentage, and this is true because of the characteristics of the process. This view is taken from the observation of a few cases of laryngeal obstruction complicating measles and which were not due to diphtheria but to some other infection. I realize that this is an impression only, for I have never seen any facts upon it, I presume because so few survive this combination.

In all cases in which intubation is not required, the breathing gradually improves, voice returns, and I am not aware of subsequent stenosis in such cases. The same outcome is true of cases after extubation except one to three per cent. of all cases. There must be some reason for the subsequent stenosis in these cases and I will take up the factors leading up to it in the order of importance, as I see them:—

1. Prolonged intubation, laryngotomy or high tracheotomy. The introduction, presence, or removal of a laryngeal tube from the larynx probably does little damage unless it must remain for some time. It must do some harm and particularly in those cases in which much membrane has been removed during intubation by irritating the denuded areas. It probably causes or keeps up some hyperemia, swelling, secondary membrane, and by pressure has some effect upon the vocal cords and their controlling muscles. It is a foreign body and if it remains very long in the larynx certain changes will follow: thickening of the mucosa, ulcerations, granulation tissue and scar tissue, pressure paresis or paralysis of the vocal cords. Rarely a single one of these factors explains the obstructive result.

2. The severity of the attack and whether there is a secondary infection.

3. Injury to the larynx during intubation or extubation. I think it is the consensus of opinion that these procedures, carefully executed, do little or no damage. It is possible, however, when done by an amateur, who is likely to use much force in his excitement over a child who is in a serious condition. Stenosis of the larynx occurred before the days of intubation.

The pathological processes produced by these factors may be classified in order of importance as follows:—

1. Hypertrophic laryngitis. By this I mean a general thickening of the mucosa of the larynx including the cords. This is really the first step of the permanent changes in the larynx. When a tube is removed from such a larynx, the mucous membrane is still further thickened by an

* Read at a meeting of the New England Otological and Laryngological Society, January 21, 1913.

acute congestion which alone may suffice to obstruct breathing and demand reintubation.

2. Pressure or traction paresis or paralysis of the adductors or abductors of the cords. It is reasonable to suppose that the sudden obstruction after removal of the tube may be due to adductor spasm of over-stretched muscles, as well as to the fright of the patient. More prolonged traction or pressure or disuse will produce paresis or paralyses of the cords. In such a case, after the tube is removed, if the child is quiet or under an anesthetic breathing may be quiet for a time, but if coughing dislodges the cords which may have been plastered against the walls of the larynx, prolapse and difficult breathing ensue. More damage is done when the tube is too large for the larynx and after a time atrophy may ensue.

3. Granulations and ulcerations. These are prone to develop in the subglottic region. During intubation this space is more or less obliterated by the lateral displacement of the cords and it seems reasonable to suppose that the retaining swell on the tube may bring pressure upon the walls of the larynx which is on cross section elliptical at this point, the lateral diameter being the smallest. Ulcerations are frequent on the anterior wall of the trachea opposite the end of the tube, but this probably does not enter much into the laryngeal obstruction itself.

4. Cicatrices or bands. These are a later development in the regions of ulcerations and may go hand in hand with this process.

5. Persistence of membrane. This may be diphtheritic or probably more frequently secondary. It might be classified with the ulcerations.

In any given case it is not easy to distinguish the real cause of obstruction except by direct examination of the larynx. It is rarely a single process but rather a combination of two or more.

Treatment. So far as I know the only treatment of this condition in this country has been prolonged intubation with various types of tubes of increasing sizes, or occasionally by laying open the larynx externally and treating in an operative way the pathological condition found. This latter procedure is not much recommended because of the immediate danger to life and secondly because the second state is worse than the first. More recently direct examination of the larynx through the mouth has been made possible, and operative obstructions can be treated at the same time. Doctor Mosher has devised a very excellent open speculum and instruments for direct intubation. In 1909, Johnston of Baltimore urged direct examination.

Before presenting my cases, I wish to speak of the results and methods of others who have followed the usual methods. Rogers, of New York, has had a large experience with these cases. His methods of treatment have been taken from a paper by him and Dr. Delevan in 1905. They advocate continuous intubation with a hard rubber tube for a long period of time. The tube should be removed occasionally to be cleaned. For those cases who repeatedly cough the tube, he used either a plugged or a clamped tube. These are ordinary laryngeal tubes, constructed so that, in the first instance, a hard rubber plug screws perpendicularly into the lower end through a tracheotomy wound. In the latter instance, through a similar wound two clamps are passed in separately; grasp the lower end at the level of grooves on both sides of the tube in the larynx, and the projecting shanks are clamped together. In either instance, the tube is held in place by the piece projecting through the tracheotomy wound. Towards the latter part of the treatment laryngeal tubes are passed intermittently. Some are also specially constructed with larger diameters to bring pressure on hypertrophic membrane below the vocal cords. They report twenty-two cases, with one death from nephritis and pneumonia, two deaths from asphyxia, three failures to cure, two relapses after many months, four under treatment much improved, and ten recoveries with no symptom for at least one year from discharge.

In 1903, Berg of New York reported 17 cases developing among 578 intubation cases at the Willard Parker Hospital from 1900 to 1903. Of these seventeen cases, seven died, seven recovered, and three were transferred to other institutions. The treatment was by prolonged intubation and the length of time the tubes were worn was from two and a half to eighteen months.

In the *Journal of the American Medical Association* of Sept. 21, 1912, is an excellent paper by Dr. Dupuy of New Orleans. He presents five cases of stenosis in small children and one adult with syphilitic stenosis. The treatment consisted of prolonged intubation with metal tubes with a low retaining swell. Four cases were successful, one of these being the adult syphilitic case.

The number of cases which I have to present is not large and perhaps not complete enough to draw definite conclusions, but I personally feel that the results are very encouraging and that our methods are at least rational.

Between March, 1910, and November 1, 1912, we have had to treat nine stenosis cases. Two of these we inherited from the Rhode Island Hospital, when the Providence City Hospital was opened. The remaining seven developed among one hundred and fifty-two cases treated, or about four and six-tenths per cent. The number of intubed cases who lived has been eighty-nine and the incidence of stenosis seven and eight-tenths per cent. among the living intubed. Of the nine cases, two are dead, one from broncho-pneumonia at the end of two months' hospital residence and not long after tracheotomy was performed. The other died under ether during dilatation. Of the seven living cases, three are at home living and well, and

four are under treatment in the hospital. One of these four was discharged cured in July, 1912, but returned to us recently with another attack of laryngeal diphtheria for which she had to be intubed and later tracheotomized. Of this case I shall speak later.

The pathological condition, so far as I was able to observe in these cases, has been a hypertrophied laryngitis involving the cords, which were thickened and red. The cords in most instances did not move normally, but I was not able to detect paralyses. I am not an expert in examination of the larynx, and in some instances the view of the cords was only partial, at most the posterior two-thirds.

Our method of treatment has differed from the one usually prescribed. It seemed to me that the tube in a larynx, being a foreign body and capable of doing much damage, as shown by the post-mortem studies of these cases, was better out than in. Knowing, too, of the difficulty in getting rid of tracheal "cannulae," it would be rational to do a very low tracheotomy so as to keep the tracheotomy tube as far as possible away from the larynx, especially the subglottic region. The object of these two procedures was to give the larynx rest by removing the tube and diverting the air through another channel. That is what is done in almost any other surgical procedure. Another fact impressed me also. If the presence of the tube does injure the larynx, the sooner it is out the better, after being satisfied by a few reintubations that there was trouble ahead. I don't believe that intubation should be prolonged more than a month unless you are satisfied that one or two more extubations will find the child able to get along without the tube. In that time no very extensive damage had been done. Indeed none of our cases were old cicatrical cases because they did not reach that stage before they were tracheotomized.

The treatment then may be divided into:

1. Prophylactic.
2. Curative.

Prophylactic. The intubation tubes should be preferably of hard rubber with smooth surfaces and having well fitting obturators. Intubation and extubation should be done carefully without undue force. Force is not required if the operation is done properly. The tube should be the proper one for the child's age. Should he cough it repeatedly, it is better to do a tracheotomy than to force in larger and larger tubes. The tube should be removed at intervals of four days to a week to test the breathing. Soft solid food should be given to keep up nutrition. The last step in the prophylaxis is not to allow the tube to be worn much longer than a month.

Curative. The tracheotomy should be done as low as possible in the midline and the opening in the trachea should only be large enough to admit the tracheal cannulae easily. The tracheal cannula should be of the proper size and of sterling silver. The child should at once be given nourishing food, tonics if necessary, strychnia theoretically in paralysis cases, though I doubt whether it is of much use. In about a week, or as soon as the wound is fairly healed, the child should be gotten out of bed. It is surprising what a great change takes place in their general condition. All of our cases have gotten hale and hearty and this, I believe bears on the successful healing of the larynx. As to the subsequent treatment of the larynx, I can lay down no rule except don't do too much.

In our earlier cases we dilatated at intervals with intubation tubes of increasing sizes or with Schroetter's graduated hard rubber dilators. Of the latter we had some special small sizes made for certain cases. Later, however, Dr. Bacon, of Providence, who was our consulting man and to whom we owe much in getting us started in this work, suggested Dr. Mosher's open speculum and direct intubation instruments. Through his instruction and by points kindly given me by Dr. Mosher, the method has superseded the original method. The advantage is that you can see what you are doing. Dilatation is accomplished by two methods:—

1. By an Otis or a Kollman straight urethral dilator.

2. By successively larger intubation tubes introduced directly and which are not left in the larynx but are taken out after a few minutes.

The former method furnishes more rapid dilatation, and one can pass a stenosis that cannot be passed by a one-year tube. The Kollman dilator has the advantage of being a four-branch dilator. The intervals may be two weeks or a month. After the larynx has reached about normal size, that is, will admit a tube suitable for the child's age, he should be left alone unless subsequent contraction supervenes.

One of the first indications of favorable progress is the regaining of the voice, husky and low pitched at first. At intervals during rounds in the wards, the tracheotomy tube is plugged to see whether the patient can breathe through the larynx. When it is found that he can, a small wooden plug is put into the tracheotomy tube for twenty minutes or half an hour or two hours —as long as the patient can breathe without too much effort. The time is increased until the patient can go night and day without effort. The tube is then removed and the sinus closes very rapidly, within a few days. The child is then kept under observation for two weeks or more and then sent home.

A brief resumé of the nine cases treated is as follows:—

Case 1. Vincenzo A., aet. 17 months. Admitted Oct. 11, 1911, intubed with two-year tube. Extubed or auto-extubation fifteen times up to Nov. 21, a period of forty-one days. Oct. 25 peritracheal abscess was opened. Tracheotomy on Nov. 21 and a No. 3 tube inserted. Death occurred on Dec. 16 from broncho-pneumonia and nephritis. Tube cultures were positive.

CASE 2. Helen T., aet. 2 years. Admitted on April 24, 1912, and intubed with three-year tube. Auto-extubed eleven times until May 2, a period of eight days, and a 5-6 year tube was the last one inserted. This tube should not have been used. Patient tracheotomized May 2 and a No. 3 tracheotomy tube inserted. Died while under dilatation (direct) while under ether, on July 12 before much progress had been made.

CASE 3. Antonio L., aet. three years. Referred to Rhode Island Hospital, Dec. 7, 1909. There was cyanosis and marked retraction. Intubated at once with a three-year tube. This was removed in three days, but had to be replaced at once. For a period of twelve days the tube was coughed up so frequently that successively larger tubes were inserted until a twelve-year tube had been inserted and this stayed. He was admitted to Providence City Hospital, March 1, 1910. The tube had been coughed up or removed fifteen times between Dec. 10, 1909, and April 18, 1910.

A tracheotomy was done by Dr. Bacon April 30, and the laryngeal tube removed. Child was out of bed in four days and on house diet in one week. The larynx was left strictly alone except twice, once in June and again in December, to determine whether there was contraction. By June 11 he was able to speak aloud. The voice grew progressively louder and less husky. The tracheotomy tube was plugged at intervals until Jan. 25, 1911, and was removed Feb. 11. There was some slight obstruction at times after running or crying, but it was never serious. He was discharged June 3, 1911, with a strong voice, in good condition, but with a small tracheal fistula. The family physician called up twice after the child went home and said that he had been asked to see him because of dyspnea. We advised that he be left alone until he needed relief. The parents became worried and brought the child to the hospital July 8. He was kept until Aug. 19, and during the stay we saw no retraction whatever. At this time the tracheal sinus was closed by application of fused silver nitrate on a probe. He had been in the hospital about twenty months. It is seventeen months since he was discharged from the hospital. On Oct. 29, 1912, the parents brought the child to the hospital that we might see him. His general condition was good. His voice was husky and low pitched and breathing was audible at a short distance and after considerable exertion he has a little dyspnea. Patient is subject to colds but otherwise runs the streets like other boys. During the last seventeen months he has been admitted to the hospital with a well-marked case of measles. He had some retraction for two days but this passed away at the end of that time.

CASE 4. Charles P., six months old. Referred to Rhode Island Hospital Oct. 1, 1909. Was intubed, extubed and discharged early in November, was readmitted late in November with laryngeal obstruction. Intubation impossible with a one-year tube. A tracheotomy was done. The child was sent home, and admitted to Providence City Hospital April 11, 1910. From that time to Sept. 19 the larynx was dilated at intervals of four days to one week with Schroetter's dilators up to No. 23. The tracheotomy tube was plugged at intervals until Nov. 30, when it was removed. During this period dilators were also passed until a three-year laryngeal tube could be inserted. Tracheotomy wound apparently closed in four days. Dyspnea gradually disappeared and voice became strong and he was discharged Feb. 21, 1911, after being in the Rhode Island and City Hospitals for about fifteen months. It is now nearly twenty-one months since he was discharged from the hospital.

CASE 5. Matthew, C., three years old. Referred to City Hospital Feb. 7, 1911. Intubed at once. Extubed in four days. The dyspnea, instead of lessening, gradually became worse until March 28, when an attempt to pass a one-year tube was unsuccessful. Low tracheotomy was done under ether April 4. On June 7, after several failures to pass any instrument through the larynx, under direct laryngeal examination with ether an Otis urethrotome was passed and the larynx was dilated up to 35 F., after which a one-year tube was inserted with Mosher's introducer. The larynx was dilated eight times at intervals until September 9, 1911, both by direct and indirect intubation, until a three-year tube was passed. After being satisfied by plugging the tracheotomy tube that the child could breathe through the larynx, it was removed Sept. 26. The wound apparently closed in four days. Discharged Oct. 6, 1911, with a good voice and no dyspnea, after being in the hospital about eight months. It is now thirteen months since this patient was discharged from the hospital. On Oct. 29, 1912, he reported with his parents for examination. General condition excellent. Is not hoarse, no dyspnea even on exertion. Subject to "colds" attended by some cough and hoarseness which passes off in a day or two. Plays as a normal child.

CASE 6. Angelina I., two years old. Was admitted Jan. 24, 1911. Intubed with a three-year tube. Was extubed or auto-extubed nine times between admission and March 9, 1911, a period of about 44 days. As large as an 8-9 year tube was used. Tracheotomy performed on March 10 and a No. 2 tube inserted. General condition became excellent. Dilatation was begun in April and was kept up at intervals for about ten months chiefly with Schroetter's dilators. We did not dare to use the direct method because she would stop breathing during manipulation. The tracheotomy tube was plugged at intervals from April, 1912, until June 15, 1912, when the tracheotomy tube was removed. Patient was discharged July 17, 1912, in good condition with a healed fistula. Treatment had been interfered with somewhat by intercurrent attacks of whooping cough and chickenpox. On Oct. 27, 1912, patient was again admitted with another attack of laryngeal diphtheria. Parents said that she had been as well as usual until eight days before admission when she was taken sick acutely with headache, hoarseness, and fever. Was up and about part of time until day before admission when she developed dyspnea. She was intubed on admission with a one-year tube which went in with some difficulty. She was relieved and temperature came to normal in a few days. Between Oct. 27 and Nov. 7 was extubed or auto-extubed six times. No larger than a 4-5 year tube was introduced. Tracheotomy was done Nov. 7 because of frequent auto-extubation and she is making good progress thus far. While there was some contraction in this case after discharge, her larynx was quite large enough to sustain life were it not for the renewed attack. Throat

and nose was postitive for Klebs-Loeffler bacilli in both instances.

Case 7. Stephen D., three years old. Admitted May 10, 1912. Intubed with a three-year tube. Extubed or auto-extubed five times between May 10 and June 15. Tracheotomy June 15. General condition poor. In six weeks general condition was excellent. Has been dilatated at intervals between Aug. 3 and Sept. 19 with Otis and Kollman dilators. The larynx was about normal in size at the last examination and we shall leave him alone unless contraction takes place. Tracheotomy tube has been plugged during daytime since Oct. 16. Voice began to return last July and is very nearly normal in pitch. We expect a result in this case within three months.

The condition of this child has not changed materially. His tube is plugged from ten to twelve hours a day, at present. His voice is very good.

Case 8. Max G., aet. two years. Was admitted Oct. 25, 1911. Intubed with a two-year tube. Extubed or auto-extubed seven times between Oct. 25 and Nov. 20. Tracheotomy was decided upon Nov. 20 but a peritracheal abscess was found and this was drained. When healed tracheotomy was done Dec. 9, 1911. This child for some time had to be fed by the nose because of regurgitation of liquids through the tracheotomy wound. There was evidently a tracheo-esophageal fistula due to unknown cause. Dilatation has been practiced at intervals between March 22 and Sept. 19, 1912. Tube has been plugged at intervals since February but it has been delayed by an attack of measles and chickenpox. In June we were nearly ready to remove the tracheotomy tube but we had to give it up because for some rather sudden reason he could not breathe with tube plugged. His tube has been plugged daily since Oct. 16 and his voice, though husky, is improving steadily. His cultures were positive for Klebs-Loeffler bacilli.*

This child has shown considerable improvement since November and within two weeks his tracheotomy tube has been plugged forty-two hours, forty-three hours, and forty-eight hours at a stretch, on three separate occasions.

Case 9. Guiseppe B., aet. three years. Was admitted Nov. 1, 1911, for measles with laryngeal obstruction. Cultures were even from his tube negative for Klebs-Loeffler. Was intubed with a three-year tube. In five days on proceeding to extube, no tube was to be found in the larynx. His bed and clothing was searched and a hasty digital examination of throat and naso-pharynx was made. Child began to breathe badly. The tube could be apparently felt in the neck and we too hastily concluded it was in the larynx. Tracheotomy failed to reveal the tube in trachea or bronchi. The tube was later found in the child's clothing but we have every reason to believe that the tube was in the esophagus and was spit up after the tracheotomy had been done. Dilatation has proceeded rather slowly because there is some tracheal constriction. It was begun in January, 1912, and is still practiced. At the last sitting, Nov. 16, a 4-5 year tube was passed by the direct method after the urethral dilator was used, but a one-year tube could not be passed before. Patient has no voice and cannot breathe with the tracheal cannula plugged.

Since the writing of this paper in November, this child has shown considerable improvement. December 18 the tube was plugged for ten minutes and gradually increased until it is plugged from eight a. m. until five or eight p. m. The voice began to appear about Nov. 29 and is very good.

Of the four cases which were sent home cured, the average hospital stay was about fifteen months.

* May 3, 1913: The tracheotomy tube in Case 8 of the above series, was removed twenty-five days ago. The child is now breathing through the larynx, and at this writing, doing fairly well.

CONCLUSIONS.

1. Intubation should not be prolonged much beyond a month.
2. A low tracheotomy should be performed.
3. Intermittent dilatation under direct vision until the larynx reaches about normal size and then only when stenosis develops.
4. Tracheotomy affords rest to the larynx and gets rid of a foreign body.
5. The danger of coughing the laryngeal tube is eliminated.
6. The treatment would seem to require a shorter period of time than that required for continued intubation with the hope of better results.

THE TREATMENT OF CHRONIC STENOSIS OF THE LARYNX AND TRACHEA.*

BY H. L. LYNAH, M.D., NEW YORK.

The different types of chronic stenosis of the larynx and trachea should be classified as follows:—

First, the Nervous Type. In this type of chronic stenosis there is a marked nervous element which accompanies laryngeal stenosis, and this element of impending fear induces a very violent adductor spasm. The spasm at times may be so great that the removal of an intubation tube is next to impossible, for the tube is held as in a vise. Often when one attempts to extract the tube it will be pulled off the jaw of the extractor and sucked back, as it were, into the larynx. When the tube, after great effort, is finally removed, there will be a violent spasm which necessitates immediate reintubation.

Second, Spasm Type Without Nervous Element. This is due to the long continued wearing of an intubation tube, the tube virtually acting as a splint to the intra-laryngeal muscles, holding them in a state of fixation or functional disuse. The abductors being held apart for so long an interval naturally disturbs the balance of power between the two opposing sets of muscles and promotes adductor spasm. The same condition is met with in retained tracheal cannula cases when there is inability of function of the muscles above the cannula from failure of air to pass through the larynx.

Third, the Polypoid Type. In this there is marked outgrowth of polypoid connective tissue

* Read at a meeting of the New England Otological and Laryngological Society, January 21, 1913.

at the base of the epiglottis and ventricular bands, which fall together and obstructs the larynx as soon as the pressure of the tube is removed, and immediate reintubation is necessary. This condition is supraglottic and to the finger feels like a ball of mush. Clinically this condition simulates the spasm type. In these three types the dyspnea is inspiratory.

Fourth, the Hypertrophic Subglottic Type. The stenosis is slow and gradual, accompanied by both inspiratory and expiratory dyspnea. The condition usually occurs at the cricoid level, but may involve the entire lumen of the larynx and trachea.

Fifth, Cicatrix Type. This type is due to traumatic pathological and surgical interference.

(*a*) Tracheotomies made imperative when intubation is impossible—as in acute diphtheritic stenosis.

(*b*) Sloughing of the anterior edges about the cannula, with dermatization and trabeculae of skin extending down on the lateral walls, or folding in of the tracheal rings with partial dermatization of the fistula.

(*c*) Over-riding of the anterior segments of the cartilage when the fistula is long and not in the median line.

(*d*) Polypoid outgrowths about the cannula and on the posterior tracheal wall.

(*e*) Bulging of the posterior soft parts forward, especially when there has been extensive perichondritis at the cricoid level.

(*f*) Septal formation following laryngofissure when the polypoid tissue becomes attached to the anterior cicatrix.

Sixth, the Atrophic Type. This condition occurs after long continued pressure by the dilating tubes. Thick sticking muco-crusts obstruct the larynx, there is loss of voice and at times extreme grade of dyspnea.

Seventh and Lastly. Obstruction of the upper respiratory tract by neoplasms, and the resultant contraction after their removal.

The Pathology. As my clinical and pathological studies have been confined principally to the stenoses following diphtheria, I will endeavor to give you a general résumé of the pathology from this standpoint, but at the same time I think I may add with comparative safety that all of the pathological lesions met with in the various forms of chronic stenosis, whether the primary cause be diphtheria, syphilis, or what not, follow this same course of new connective tissue, cartilaginous, and bony development. In other words, the generic process and end results are much the same. The changes inaugurated and carried on by the diphtheritic process may, therefore, serve as a pattern and a type for the chronic stenotic lesions of the larynx in general.

In laryngeal diphtheria the basis for the whole of the pathology of this condition is laid down in the beginning with the acute diphtheritic exudate and primary intubation. When the exudate resolves early the patient is able to remain without the tube on the first extubation, but when the exudate does not resolve early and extubation is performed the subglottic infiltration necessitates the wearing of a tube for a longer period. The tube virtually acting as a foreign body, causes pressure on the swollen laryngeal soft parts, and as it rides up and down or antero-posterior during the acts of coughing and swallowing, the unhealed ulcerations are increased, which also add to the necessity of prolonged intubation. These pressure ulcerations are most marked at the cricoid cartilage, and when of sufficient degree cause necrosis with absorption of the whole of the cricoid ring, with the frightful sequelae of persistent auto-extubation. With the absorption of the cricoid cartilage the tube can no longer be held in place by the retention swell, and is, therefore, auto-extubated, and as the tube is coughed out the larynx collapses, or the walls are sucked together by the first inspiration of the patient.

The once firm cartilaginous larynx at the cricoid level is now converted into a collapsible tube.

This auto-extubation is not due to pressure on the recurrent laryngeal nerves, causing a bilateral paralysis of the vocal cords, but to the absence of the cricoid, and consequently the tube cannot be held in place.

The recurrent laryngeal nerves show no sign of pressure, and a bilateral abductor and adductor paralysis of neural pressure origin, however attractive in theory, is not substantiated by fact, both clinical and histological.

This necrosis is the starting point of the subacute and chronic case. Round cell infiltration, followed by productive inflammation, which leads to the formation of new connective tissue, although reconstructive, obliterates the lumen. This new connective tissue is richly supplied with blood vessels. Now the changes next involve the cartilage, and the regeneration of the thin areas left undergo ossification, and where we once had a cartilaginous cricoid we now have new bone formation.

In the thyroid cartilage the same type of new connective tissue occurs. Polypoid projections which involve the base of the epiglottis are connective tissue, very vascular, and hang as elongated tufts arranged like a bunch of grapes with the blood vessels as the stem. The mucosa and submucosa may be extremely sclerotic and the cartilage may undergo metaplasia and ossification with projections into the lumen. The intralaryngeal muscles also show changes, though not to such a degree as one would suppose. However, there is some myocitis.

The arytenoid cartilages may be distorted and out of place; they may also be metaplastic and bony.

In the trachea villous polypoid projections extend into the lumen and polypoid outgrowths occur on the posterior wall. Though ulcerations

occur in the trachea there is little or no destruction of the cartilaginous rings.

The whole surface of the larynx is covered with epithelium of the transitional and stratified squamous varieties. In the trachea the epithelium is cuboidal, but is also absent in places. This may be due to rubbing off of the epithelium by the manipulation of the specimen. Those of you who are familiar with the handling of laryngeal specimens know how easy it is to brush off the epithelium. I could find no columna ciliated epithelium.

The Treatment. The different types seldom occur singly and all require prolonged intubation to effect a cure. For the nervous and spasm types an extremely narrow necked tube should be used, but it must have sufficient lumen for the patient to get air. The purpose of this tube is to allow for play of the abductor muscles. As the lumen of my narrow necked tubes was too small to admit of free passage of air, I devised another method by taking out the posterior portion of the tube below the head directly into the lumen. These tubes are made with three different sized fenestra, and they allow play of the muscles and at the same time sufficient air. The smallest abductor tube, as I call it, is inserted first, then the other sizes four to six weeks later and allowed to remain in until all signs of adductor spasm or holding about the neck of the tube has disappeared, after which time the patient is able to remain without the tube.

These nervous and spasm elements seem to act one upon the other; opiates and anti-spasmodics are of no avail, and these types are only overcome by general anesthesia. The spasm of the nervous element is more violent and comes on at once, while the other type is delayed and may not occur for several hours.

When polypoid outgrowths are present and mistaken for spasm the fenestra of the abductor tube will be completely occluded, and make it impossible for the patient to breathe. Under general anesthesia the direct laryngeal speculum is the greatest aid in determining this factor. For such cases an extremely large head and neck tube is necessary to press out these mushy-like masses. Under general anesthesia these patients will breathe, though with difficulty.

For the hypertrophic type: Gradual dilatation with special tubes measured in millimeters with increasing diameter should be used. The tube should dilate antero-posterior as well as laterally, and my tube of cigar shape accomplishes this purpose. It must not be forgotten that the hypertrophic type involves the entire lumen. These tubes are gradually increased in size until the largest possible dilatation is accomplished, but by the excessive dilatation more pressure will be put upon the intra-laryngeal muscles and spasm will result. There are cases, however, which never have any spasm, even when treated by the greatest dilatation; these have no nervous element and are anxious to remain without the tube.

The best control of telling how a case is progressing when treated by dilatation is by the absence of hemorrhage at intubation and extubation. The extremely vascular tissue will bleed at the slightest touch, but this will discontinue as soon as pressure mashes out the vascular supply. These tubes are changed once each week for the purpose of cleansing and a size one millimeter larger reintroduced.

The treatment of the cicatrix type is the same as in the hypertrophic, by dilatation, though when the tracheal fistula is low a special tube, with the greatest diameter from the retention swell downward, should be used. When the case is one of chronic stenosis from long wearing of a tracheal cannula with closure of the larynx above, they should be dilated from the tracheal fistula upward by means of sounds and then a suitable dilating tube introduced. Intubation is often extremely difficult in these cases, owing to a hypertrophy of the posterior tracheal wall with a projection into the lumen, and the tube as it enters the trachea will ride over this obstruction and appear in the wound. To overcome this, firm pressure should be made on the intubation tube at the site of the fistula to mash out this posterior hypertrophy and allow the tube to pass the fistula into the trachea below.

This tube should be preferably a post tube, which has a device which can be screwed into the tube to prevent its being dislodged during the act of coughing. The tracheal fistula should be curetted and all polypoid tissue removed, the edges sacrificed and the wound closed about the post. This tube should be worn for about one month, then the post removed, the tube changed and a larger dilating tube introduced. If this tube is coughed out it is not at all a difficult matter to screw the post back in place through the small fistula.

I have also employed a tube with its bridge attachment after exploring the larynx by laryngo-tissue, to endeavor to dissect out the new connective tissue; which I may add is an extremely difficult procedure owing to the friability and vascularity of the membrane, and this radical procedure I have abandoned as futile, for a pure cicatrix is added to the already complex pathology. I had fairly good results, however, and two out of five cases healed by primary union, but owing to infection taking place in these wounds, they usually heal by granulation.

The atrophic types with the thick sticky muco-crusts, which obstruct the larynx after a cure has been effected, should be treated by intra-laryngeal medication, internal administration of the iodides, and steam inhalations. I have had cases which were reintubated owing to this crusting and mucous obstruction which they were unable to cough out, and in each instance I have been able to reintubate with a large dilating tube, only to have this thick muco-crusty mass coughed out through the lumen.

The whole of the credit of intubation belongs entirely to the late Dr. Joseph O'Dwyer. Dr.

O'Dwyer recognized these chronic cases but he did not dwell upon the pathology of the disease to any great extent nor did he recommend treatment by special tubes. He did, recommend, however, that the duration of tubage should be prolonged. Dr. John Rogers, in his masterly monograph on this subject in 1905 was first to introduce special tubes to dilate the stricture. Working independently of Rogers during my early days as resident physician of the Willard Parker Hospital, in 1904, I met with a case of low tracheal stricture, for which I had a dilating tracheal tube made with its greatest diameter from the retention swell downward. I had the tube fashioned after urethral sound, and cured this case after seventy-eight days' treatment. I did not know how I had cured the case nor was I at all familiar with the pathology. I was simply working in the dark and no doubt that was the main reason why the patient recovered. I have been working steadily since that time and as I gained experience and became more conversant with the pathology I changed the tubes with an endeavor to overcome the pathological condition in each individual case.

For the persistent cough-up case, which invariably becomes a chronic if he does not die of broncho-pneumonia, and upon which high tracheotomy is usually performed, I devised a tube with the same diameter as the neck extending to the end of the tube, at which site there is a bulbous extremity which rests in the lower trachea. This put a stop to the coughing up but before the introduction of these tubes the patient was able to cough out tubes of greatest diameter. These tubes are held by the cartilaginous rings of the trachea where no ulceration is present. The only danger of these tubes is that they should not be left in longer than four days before they are changed, for the contraction about them at the cricoid level will be so great that extubation will be extremely difficult. In one case I forgot to change the tube for one week, and had extreme difficulty in raising the bulbous swell through the dense contraction in the larynx.

My post tubes are a modification of Rogers' clamp tube, but I think it is much simpler and easier to adjust and can be used at any age. His can only be used in older children and adults.

I have treated 50 cases of chronic post-diphtheritic stenosis during the past eight years. Thirty-two cases recovered, 8 died, 2 from failure to reintubate and 6 from intercurrent diseases during their treatment, and 10 are still under treatment in the hospital. The percentage of chronic stenosis has remained at or below one per cent. Four other cases which were also intubated were three post-operative chronic tracheal cannula cases for papillomata and foreign bodies and 1 carcinoma. I shall not burden you with any report of these cases. All of my cured cases have been shown before several of the medical societies of New York, and I consider none of them cured until they have remained without the tube for a period of from one to two years.

The Voice. The voices vary from husky to normal. In the cicatrix type the voice is not so good as in those treated by dilatation, and in one cicatrix case the voice was lost, for the scar when contracting pulled the vocal cord out of place. My average duration of treatment has been variable, seventy-six days to five years. The general average is from one to three years, the hypertrophic type being the most difficult to cure.

Feeding. All cases are allowed to run about and eat the same food as other children; they regulate the amount of food and eat with as much ease as a patient without a tube. Dysphagia occurs at times after the introduction of a large head tube, and again when the larynx has been dilated from the tracheal fistula upward. I have had one such case, in which interstitial emphysema so blocked the whole of the pharynx that gavage was impossible and the patient had to be fed per rectum.

DISCUSSION.

BY DR. EDWIN H. PLACE

Personally, I have enjoyed very much the papers tonight and especially the remarkable series of illustrations of the changes that occur in the larynx in these cases.

The marked contrast in the two methods of treatment is interesting: one in which the larynx is left alone primarily with secondary periodic stretching and the other in which intubation is continued for long periods using larger and larger tubes.

In my limited experience, the former method has been followed. Tracheotomy has been done as soon as possible as it became evident that the case would prove a chronic one. Recovery sometimes follows, simply leaving the larynx free from irritation by tracheotomy.

There have been only four chronic tubes in about 900 intubation cases at the South Department during the past six years. The percentage will vary with the total mortality of intubed cases. If there was a 50% mortality there should be a much lower incidence of chronic laryngeal obstruction than if there were a 10% mortality, other things being equal. For the fatal cases are especially the ones that would have been chronic tubes if they had passed the acute stage. As the mortality was below 20% in these cases it gives an incidence of about ½% of the surviving intubed cases.

Of these four cases two have completely recovered, one is able to breathe rather freely through the larynx and phonates, and the fourth, who was a woman addicted to alcohol and in whom suitable subsequent care has been impossible, still has complete obstruction. I feel that the prevention of this unfortunate result in laryngeal diphtheria is especially important.

It does not seem to me that the diphtheritic process is particularly the cause, as it is not really a destructive process as a rule. I am sure that some of the chronic obstructions after intubation did not have diphtheritic infection. The differential diagnosis is difficult and the case often shows alarming obstruction, preventing careful study. I have seen severe destructive lesions of the larynx in scarlet fever and measles in which no diphtheria was present.

Trauma in inserting and removing the tube, pressure on the soft tissues by too large a tube surrounded, as it is by the unyielding cartilage, are very important causative factors. Much skill is needed and beginners offer much more danger.

Dr. Mosher has suggested that the direct method might prevent trauma, and I think that there is a field for it, especially in the cases which already show a tendency to persistent obstruction. The indirect method will probably be preferred in emergencies, as the tube can be inserted as quickly or more quickly than the speculum alone.

THE DIETETIC TREATMENT OF CONSTIPATION.

BY L. H. NEWBURGH, M.D., BOSTON,

Assisting Visiting Physician to the Massachusetts General Hospital.

Our understanding of the factors concerned in the passage of food through the gastro-intestinal tract has been greatly augmented within the last decade by means of the x-ray studies in this field. Cannon[1] has described in detail the normal mechanical activities of the cat's alimentary canal. (*a*) In the small intestine he observed chiefly two types of movement. (1) Rhythmic segmentation—which serves to thoroughly mix the food with the digestive juices and to promote absorption by pressing the mucosa against the chyme over and over again. The contents are not moved along the intestinal tract by segmentation. Hertz[2] has observed rhythmic segmentation in man. (2) Ordinary peristalsis which pushes the food slowly forward a few centimeters during each period of its activity. (*b*) In the cat, the food as it enters the colon, is pushed back into the cecum by the antiperistaltic waves which traverse the transverse and ascending colon. The proximal colon is finally filled by the chyme being pressed through the ileo-cecal valve.

A constriction ring now forms at the distal end of the intestinal contents, cuts off a segment of the hardening chyme, which is then slowly carried forward by an advancing wave. All the chyme, as it reaches a certain point, is thus cut into short segments and these are moved slowly along the descending colon. Block[3] has observed antiperistalsis in the human colon. Holzknecht,[4] as a result of his x-ray studies, believes that the human colon is at rest most of the time. He states that the advance of the colonic contents occupies but a few seconds in each twenty-four hours. The propulsion is an extensive and powerful act which makes itself manifest by the sudden moving forward of about a third of the whole colonic contents. Three or four such movements, lasting about three seconds each, recurring about each eight hours, suffice to empty the large intestine.

Schwarz[5] has also seen the powerful peristaltic waves described by Holzknecht but cannot agree that the colon is quiet in the interval. He affirms that the human colon is never quiet, but that it is always making small kneading movements resembling the rhythmic segmentation of Cannon. These movements tend to push the contents canalwards.

Having given this brief résumé of the movements of the intestinal tract, which of them are we to consider of greatest importance for propelling the food?

Miller and Hesky,[6] working with dogs, removed both muscular coats of the colon from cecum to rectum. They found that defecation was not disturbed except for a slight delay. Evidently the movement through the colon (under these conditions at any rate) must be caused by a *vis a tergo*—by peristalsis of the small intestine. Consequently, constipation cannot be due to atony of the musculature of the colon.

Hertz on the other hand found delay of food in the human small intestine only in lead poisoning and consequently believes that when evacuation is delayed the large intestine is the place of retention. If then, in simple constipation, the food reaches the colon within normal time limits. a mechanical explanation for constipation must be found in some abnormality of function of the colonic musculature. The following factors are considered: (1) decrease or absence of segmenting movements described by Schwartz. (2) Segmentation pushing the contents backward instead of forward. (3) Increased antiperistalsis. Schwarz, as the result of his observations on a large number of the habitually constipated, asserts that the cases may be separated into two groups: (1) Hypokinetic in which there is absence of physiological segmentation—delayed pushing of the chyme into the lower colon.

The fact that defecation is practically normal in dogs which have been deprived of their colonic musculature; that rhythmic segmentation in the small intestine of cats does not advance the chyme; that Holzknecht denies the occurrence of pendulum movements in the human colon and that Schwarz himself does not attribute great propelling ability to this movement. would lead one to believe that this need not be very seriously considered as a cause. (2) Diskinetic—in which the lower colon is filled in the normal time but segmentation pushes food in the wrong direction and there is a pathological increase of antiperistalsis. That segmentation may work in the wrong direction to produce constipation is even less tenable than that the latter may result from its absence. That increased antiperistalsis would be a sufficient force to keep

feces out of the lower colon seems reasonable; but we have no direct proof that it does occur. Schwarz assumed that it must take place because he observed that a bismuth meal reached the rectum within the normal time limits and that shortly thereafter, in the absence of defecation, the descending colon and rectum had become empty.

A critical review of all this work must lead to the conclusion that it has not been demonstrated that simple constipation is due to an abnormal motor activity of the intestine and accordingly we can find no firmly established scientific foundation upon which to construct our therapeutic procedures, but are compelled to use that treatment which empirically has been found most efficient.

If we investigate the habits of persons who are suffering from habitual constipation we find that the disease has usually followed certain definite changes in the diet. If these dietetic changes are adopted by a class of people who then become constipated as a class, we are more justified in believing that this factor is a causal one than if we can merely discover isolated individuals who have become constipated at some period after changes in diet have taken place. The Russian Jews who emigrate to the United States present just such a class. Large numbers of them come to the Out-patient Department of the Massachusetts General Hospital for the relief of symptoms which on analysis are found to be those of constipation. I have questioned a great many of these patients about the details of their food before and since leaving Russia and they have in the main all told the same story: In Russia they lived in the country or in villages. They either raised on their own land, or had easy access to green vegetables. These formed a conspicuous portion of one or two meals every day. Meat, on account of religious restrictions and because of its high price, was a luxury which was indulged in only about once a week. The bread* was of the coarsest variety, was often the main article of diet and was always eaten in large quantities. Milk, cream and potatoes were plentiful. Cereals formed a constant constituent of the diet. When the Russian comes to this country he is greatly impressed with the excellence of our American beef—he finds white bread more palatable than his native black bread. (An important step in the milling of white flour is the removal of the bran by a process called "bolting.") He is tired of cereals. In a very short time, therefore, his diet is almost entirely lacking in two features, namely (1) bulk, because of the absence of green vegetables and (2) the coarse cellulose envelopes of grains because of the absence of the coarse bread and the cereals.

That the isolated cases of constipation occurring among other foreigners and the American born are typified by similar dietetic restrictions is easily determined by questioning.

All cases of constipation are not due to dietetic errors. Strictures, adhesions, enteroptosis, relaxed perineum, inactivity the result of chronic disease, etc., may cause it. But the author is convinced that all these varieties taken together form a small group when compared with the form under discussion.

The following histories exemplify constipation resulting from dietetic errors.

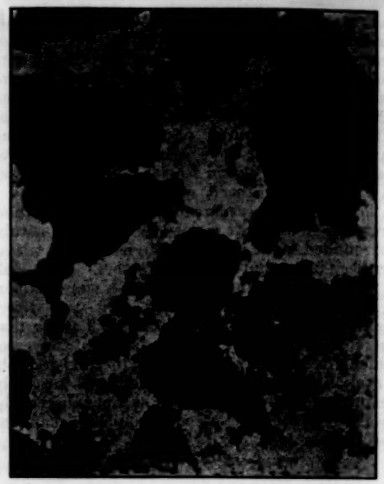


FIG. 1. Black Rye Meal. X8.

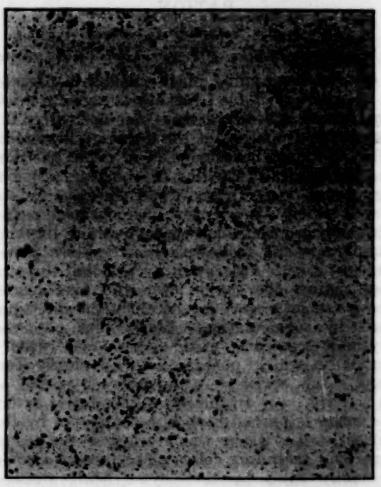


FIG. 2. Patent White Flour. X8.

* The native "Schwartzbrot" is made of black rye meal, salt and water. This meal is the product of the first grinding, still contains all the coats of the kernel and is very coarse. Four pounds of this meal make a loaf weighing four and one-half pounds. It is used by the peasants solely because it is cheaper than the finer meals or the flours, the result of further grinding.

Case 1. H. C., age 36 years, clerk. Eleven years ago came to this country from Russia; since that time he has been severely constipated, often going three days without a movement. For the same length of time he has been greatly troubled with gas on the stomach which he is unable to raise. This is frequently so annoying that he feels as if he were choking. He has no pain. He has been constantly seeking relief for his constipation since coming to the United States, and asserts that he has consulted at least thirty doctors. One year ago he had an operation on his anus for cure of the constipation, without relief. His diet since coming to this country has consisted of white bread, butter, eggs, milk, farina or cream of wheat, meat and potatoes. He has had no oatmeal, cornmeal or cracked wheat or other coarse cereal and no green vegetables. In Russia he lived on large quantities of coarse rye bread (several pounds daily), oatmeal and green vegetables, vegetable soups and other foods as at present. Return to this diet was quickly followed by one or more large movements daily and the disappearance of all symptoms.

Case 2. H. N., age 66 years, merchant. Thirty or more years ago patient began to be greatly troubled with headaches and severe crampy abdominal pain. He was treated for "biliousness" without much benefit. The next physician told the patient that in the hot weather "his bowels were dry" and that this caused the constipation! The patient asks how this diagnosis explains the constipation during the cold weather. During the next five years, massage, electricity and the medicine ball were tried, all without effect and he had always to return to purgatives. About twenty years ago he began to use saline waters and feels sure that he took the water every morning for fifteen years. Three years ago the patient came under my care. All purgatives were forbidden and the constipation diet ordered. He states that after a few days' trial, his bowels began to move regularly, once or twice daily, and since that time he has considered himself fully cured.

Case 3. N. S., age 25 years, housemaid. Remembers no illness up to about two years ago. At that time she began to have sharp pain in the lower abdomen, first on the right side and later on both sides. At the same time she noticed a cutting pain in the epigastric region. The pains came on at irregular times, bore no relation to food and were not accompanied by nausea or vomiting. She had been constipated for many years and had taken a variety of laxatives. She noticed that the pain disappeared when she succeeded in having a good movement. After having had these pains for several months, fearing that she was seriously ill, she returned to Ireland and remained there eight months. While in Ireland she felt perfectly well, her bowels moved one or more times in the 24 hours, perhaps owing to the fact that she drank a quart or more of buttermilk daily. After coming back to this country, all her symptoms returned, her bowels moved badly, sometimes not for four days at a time. She began to vomit about three times a week and was almost constantly nauseated. Then pain in the back came on, grew very severe and was often bearing down in type. In August, 1912, she was seen by a surgeon who removed her appendix and left ovary. Six weeks later she began to have sharp epigastric pain daily, often relieved by taking food. She was almost as badly constipated as before and felt very miserable. Dec. 20, 1912, she was put on the constipation diet without meat. The bowels began to move once or twice a day. Within a week all symptoms were gone, she felt distinctly well and has remained so to date. The return of meat to the diet four weeks ago has given rise to no discomfort.

Case 4. H. E. C., age 46 years, cutter. Since childhood subject to "bilious attacks." For the ten years preceding 1901 suffered from dull pain and heavy feeling in epigastrium, never severe enough to prevent work or sleep. Bowels had moved two or three times a week. He was admitted to the Massachusetts General Hospital. His examination was negative save that slight tenderness in the right iliac fossa was noted. Appendectomy was performed, and an appendix normal save for a few adhesions was removed. The patient was well for the next four or five years. During that period he took particularly good care of himself and was not constipated. After that, constipation returned and the pain grew progressively more severe. Dec. 9, 1912, for several weeks has had disagreeable sensation in the small of the back but no real pain; is worried and lacks the sense of well-being. No cough, indigestion or urinary symptoms. His diet is as follows: Breakfast: small helping of oatmeal, two fried eggs, cocoa. Lunch: fish, white bread and butter, tea. Dinner: meat, white bread and butter, pie. He eats practically no green vegetables and no cereal. The patient was put on the constipation diet and cathartics forbidden. Dec. 15, 1912, has followed the diet, bowels move daily and he now feels perfectly well. Feb. 14, 1913, admitted to the Massachusetts General Hospital for acute intestinal obstruction. Two weeks ago gave up the diet. Up to that time had been perfectly well, since then getting more and more constipated. Bowels have not moved for four days. Two days ago began to vomit and has continued to do so about every hour since.

Examination of the abdomen revealed nothing abnormal. Bowels were moved by means of large doses of castor oil and oil enemata. All symptoms disappeared. The patient is now living on the constipation diet without return of symptoms.

If then the disease is due to the absence of certain articles of food in the diet, it ought to be cured by adding such articles. This is exactly what happens. The logical treatment of constipation must then consist in giving our patient a diet which contains sufficient bulk in the form of cellulose to make his bowels move normally.

The presence of cellulose in the diet presumably insures normal defecation for the following reasons: Cellulose has the property of holding large quantities of water. Bran, soaked in hot water for two hours, increased its volume threefold. Since it is not absorbed by the intestinal tract, it must consequently add two qualities to the feces, bulkiness and softness. Bayliss and Starling[7] studied the effect of stretching upon the smooth muscle of the intestine. They found that distension with a balloon caused contraction above and relaxation below the distending force. They called this the "law of the intestine." The result of this reflex is forward movement of the intestinal contents. The bulk af-

forded by the swollen mass of cellulose must accordingly act as a constant stimulus to peristalsis. The softness of the feces greatly reduces the work required to drive the mass forward.

We are now ready to consider the diet in detail. We must first carefully explain to our patient what we are trying to accomplish. He has in all probability been told that he must not eat this or that food; and he has in addition come to the conclusion that certain foods are bad for him. Very generally it will be found that he has gradually given up those very things which were most effective in causing evacuation of the bowel. His constipation has become progressively more obstinate during this period and the symptoms resulting therefrom have become more annoying. If these symptoms have been those of hyperacidity (which is not uncommon), or other gastric or epigastric distress, his physician will in all probability have progressively reduced the coarseness and bulk of the diet because he attributes the symptoms to these two factors. The patient must be made to understand that henceforth, the question is not what he should not eat but what he should eat. He must thoroughly grasp that his symptoms are entirely caused by his constipation, that if he eats enough of certain foods his bowels will move, his symptoms disappear and that then he may eat anything he pleases, provided always that he eats enough of the cellulose-containing foods. The most generally useful articles of diet in this connection are: among cereals, oatmeal, cracked wheat, cornmeal; among vegetables, lettuce, cauliflower, celery, cabbage, spinach, asparagus, tomatoes, beans and peas; among fruits, apples, grapes, prunes, eaten with the skin on, dates, figs and berries.

Although merely giving the patient a diet slip without a thorough explanation of what we are trying to accomplish, will usually meet with failure, nevertheless a menu such as the following may be found helpful as a basis for further elaboration:

BREAKFAST: Fruit, apple, grapes or berries. Cereal: large helping of oatmeal, cracked wheat or corn meal. Eggs, in any form, graham or whole wheat bread, toasted or not, coffee or tea.

LUNCHEON: Small helping of fish or meat with a large helping of spinach, cauliflower, cabbage, tomatoes, green peas or beans. Two or more slices of whole wheat or graham bread, or oatmeal crackers. Desert as desired.

DINNER: Unstrained vegetable soup. Small helping of meat, fish or poultry, baked potato, "jacket" and all, peas, beans, spinach or cauliflower; salad, made from lettuce, celery or asparagus; bread as at luncheon; desert as desired; coffee.

Laxatives and cathartics should not be prescribed for several reasons, viz: the patient will rely upon the medicine to relieve his ailment and neglect his diet; it is exceedingly difficult to procure normal movements by means of laxatives; griping and other unpleasant sensations are common; laxatives give a false hope by producing watery evacuation of part of the feces with a retention of the remainder which still acts as a source of symptoms. Even if laxatives produce the required result, most human beings would rather feel they are well because they are living properly than because they are taking a medicine. Obviously, there is a small group of cases, as in Case No. 4 above, who demand brisk catharsis in the beginning of the treatment; but after the first good movement, no further drug should be given.

A considerable number of the patients seek treatment for the relief of symptoms of hyperacidity—that hyperacidity is often due to constipation has been stated above. Here, entire relief is afforded through the dietetic treatment of the constipation, but frequently this takes several weeks. Very rapid relief may be obtained by omitting all meat, spices, condiments, tea and coffee for the first two or three weeks.

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THE FAVORABLE INFLUENCE OF PERIODS OF A PROTEIN FREE DIET IN CHRONIC NEPHRITIS.

BY HARRY W. GOODALL, M.D., BOSTON,

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THE importance of a low protein diet in chronic nephritis has been recognized for some time.

Arnold[1] has taken 90 gm. as the maximum and 50 gm. as the minimum daily intake, as a general rule to be followed. With favorable cases he has allowed more than 90 gm. and in advanced cases less than 50 gm. daily. Other observers have advised similar restrictions. The improvement which follows such a restriction is for the most part to be explained as follows:

The elimination of the end products of protein metabolism, urea, ammonia, uric acid, etc., constitutes a large proportion of the total work which the kidney has to do. If for any reason there is a gradually progressive diminution in the ability of the kidney to excrete waste products the time finally comes when there is a tendency for the waste materials to accumulate in the blood. The presence of these accumulated wastes in turn stimulates the kidney to work all the harder in an effort to excrete them. Now for the first time there is clinical evidence of the decreased power of the kidney. This is seen in a gradual increase of the quantity and a gradual decrease in the specific gravity of the urine excreted and sometimes in a gradual increase of the blood pressure.

In this early stage the kidney is able by doing extra work to eliminate the waste materials. This extra work, however, only serves to wear the kidney out all the more rapidly, and finally the condition advances to a point where these products accumulate in the blood, exerting a toxic influence. As a rule, then, when clinical symptoms, such as headache, dyspnea, etc., first call attention to kidney disease, a retention of waste products already exists.

The treatment of such a condition, aside from correcting the underlying cause when possible and favoring elimination by the skin and bowels, is to relieve the kidney of as much work as possible, thereby resting the organ. This is accomplished, of course, by restricting the intake of those substances, the end products of which are excreted by the kidney. In practice, however, it has been considered unsafe to carry the restriction below the level at which the body will remain in nitrogenous equilibrium, viz., 50 gm. of 60 gm. Such a restriction represents about half the average daily intake of protein in health and necessarily relieves the work of the kidney considerably. The degree of relief will depend largely upon the ability of the kidney to perform its work. In the early stages it is more than probable that the retention of waste products will be overcome and all symptoms will be largely relieved. In the later stages, however, there will be retention and the symptoms will only be mitigated.

If now all protein could be restricted from the diet, the urinary nitrogen would only equal such amounts as result from the wear and tear of tissue protein. If under these conditions sufficient amounts of carbohydrates and fats are ingested to satisfy the energy requirements of the body the urinary nitrogen sinks to about 3 gm. or 4 gm. in 24 hours, representing a destruction of from 20 gm. to 25 gm. of protein. With such a marked restriction one would expect that, in all but the most advanced cases, the kidney not only would promptly clear the blood stream of the accumulated waste but would find an opportunity to rest and would thereby regain a part of its lost function, the degree of improvement being proportional to the amount of kidney tissue already destroyed. The reason why a total restriction of protein has not been advised is because it has been considered harmful if enough protein is not ingested to maintain the body in nitrogenous equilibrium. Furthermore, it has been considered that the sudden withdrawal of protein from the diet might in itself cause disturbances in the economy.

However, there is evidence that the sudden withdrawal of all protein from the diet causes no particular disturbance and that such a restriction can be maintained for from seven to ten days and possibly longer without resulting harm.

Folin[2] in 1905 gave a diet of "starch and cream," yielding only about 1 gm. of urinary nitrogen and 3000 calories, to four normal persons for a period of from seven to ten days without injurious effects. Again in 1908,[3] the same diet was given to eleven normal medical students for a period of seven days. During this period the men were under the observation of the writer, and aside from distaste for and the monotony of the diet no particular disturbance was noted. The influence of such a diet upon diseased conditions has been observed by the writer in a case of diabetes insipidus[4] and two cases of leukemia (unreported) for a period of a week, and no injurious effects were noted.

With these facts in mind it occurred to the writer that persons suffering from a decreased ability of the kidney to excrete waste products might be more promptly relieved and perhaps more permanently benefited if the usual restrictions of protein intake (50 gm. or more) were supplemented by periods of a diet practically free from protein, as the accumulated waste would be got rid of much more promptly, and a kidney no longer capable of removing the end products of 50 gm. of protein might again reduce the nitrogenous contents of the blood to normal. Furthermore, in advanced cases the institution of such a diet, at intervals, for periods of from one to seven days, according to the severity of the disease, would keep the accumulated waste at the lowest possible point, with considerable relief from the disagreeable symptoms.

In order to determine whether or not these results would be accomplished, seven cases of chronic interstitial nephritis, as diagnosed by an increased blood pressure and an increased quantity of urine with a low gravity, were selected. The majority of the cases showed secondary cardiac signs and must, therefore, be classed as advanced cases.

Aside from the ordinary cleansing baths and ordinary care of the bowels no other form of treatment was instituted. No medicine was given, and no restriction was placed upon water and salt. The only change from the patients' usual mode of life was the rest from work necessitated by their stay in the hospital, so that in so far as one can clinically control such observation the results obtained are to be ascribed to the protein restriction. In the first experiment the "starch and cream" diet was given for a period of five days. Owing to the lack of variety in this diet, however, it seemed desirable to select, if possible, a more general diet which would accomplish the same results. For this purpose the following foods, poor in protein (in this paper designated as "protein free"), were selected:

Sweets. Candy, honey, sugar, maple sugar, marmalade.

Fruits. Apricots, apples, bananas, blackberries, cherries, cranberries, currants, figs, grapes, huckleberries, lemons, musk melon, oranges, peaches, pears, pineapples, prunes, raspberries, strawberries, watermelon, citron.

Vegetables. Asparagus, string beans, beets, cabbage, carrots, cauliflower, celery, cucumbers, lettuce.

onions, parsnips, potatoes, radishes, rhubarb, turnips, spinach, beet greens, squash, tomatoes, Brussels sprouts, rice.

Starches. Arrowroot, tapioca.

Fats. Butter, olive oil, heavy cream.

Relishes. Olives, vinegar, lemon juice, cucumber pickles.

No difficulty is experienced in maintaining the caloric requirements of the body with these food materials and while their protein content is somewhat larger than that of the "starch and cream" the quantity of urinary nitrogen excreted is practically the same with both diets.

At the end of the protein free period amounts of protein not exceeding 60 gm. were added to the diet.*

When these experiments were begun there was no method of estimating the degree of waste retention in the blood stream, and conclusions had to be based entirely upon clinical evidence, such as relief of symptoms, lowering the blood pressure, improvement in cardiac signs and the diminished excretion of urine. Six of the seven cases are here studied from this point of view.

Recently, however, Folin[8] has devised methods for the determination of end products of protein metabolism in the blood, which open up the way for a much better understanding of the disturbances which result in diseases where the kidney fails to perform its function. By this means it is possible to diagnose the condition in the earlier stages and to determine with accuracy the results of diet restriction. Through the courtesy of Prof. Folin, who made such an examination of the blood in the remaining case (Case 6), I am able to produce evidence in support of the conclusions drawn from the other six cases.

The accompanying charts of the reported cases record in each instance the diet, the systolic blood pressure, the quantity of urine, and the total urinary nitrogen excreted, during the period of observation.

CASE 1. (Chart 1.) June 2, 1912. Female, 42 years of age. Scarlet fever at 19 years of age. Known to have albumin in urine for three years. Said to have high blood pressure for over a year. Complains of frequent headaches, dyspnea, palpitation, and swelling of ankles at end of day.

Examination. Hgb. 80%. No arteriosclerosis. Right border cardiac dullness 2.5 cm., left border 11.5 cm. from mid sternum. Systolic murmur at apex, aortic second accentuated. Urine, albumin 0.1% (Esbach). Rare hyaline and fine granular casts.

At the end of the protein free period (5 days) the following changes were noted:

Complete relief of symptoms. Ankles no longer swollen. Left border of cardiac dullness 9.5 cm. from mid sternum. Weight increased from 118½ pounds to 122¼ pounds. On the last day of observation (30 days), the patient stated she had not felt as well for five years. Hgb. 95%. Weight 128 pounds. Otherwise examination same as last note.

Subsequent History. Last seen five months later. During this period has been seen four times. No return of symptoms. Highest blood pressure recorded 165. Highest urinary nitrogen 9.8 gm. (61 gm. protein). Weight 131 pounds. Otherwise no change in physical examination.

CASE 2. (Chart 2.) March 9, 1912. Female, 30 years of age. Treated for heart trouble eight months. Complains of frequent headaches with nausea and vomiting, blurring of vision, dizziness, dyspnea, palpitation, unable to lie on left side. Large quantity of urine, slight swelling of legs.

Examination. No arteriosclerosis. Hgb. 90%. Pronounced throbbing of vessels of neck. Right border of cardiac dullness 2.8 cm., left border 11 cm. from mid sternum. Systolic murmur at apex. Aortic second accentuated. Slight edema of ankles. Urine, albumin 0.1% (Esbach). Rare hyaline cast. End of protein free diet (7 days).

Eyesight improved. Complete relief from all other symptoms. Left border cardiac dullness 9 cm. from mid sternum. Murmur less pronounced. Weight increased from 115¼ to 117¼ pounds.

Subsequent History. Soon after leaving the hospital the disagreeable symptoms returned. Weight fell to 114. Blood pressure on two occasions 225 and 240. Suspicions that more than 60 gm. protein were ingested were confirmed by finding on these two occasions a urinary nitrogen of 14.5 gm. (90 gm. protein) and 15.3 gm. (95 cm. protein).

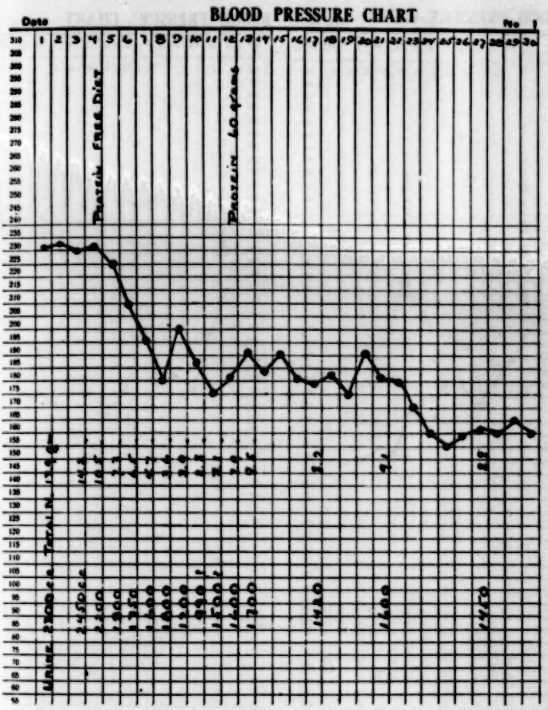
June 13, 1912. Protein free diet for 9 days. (Chart 2A.) Improvement similar to that of the first period.

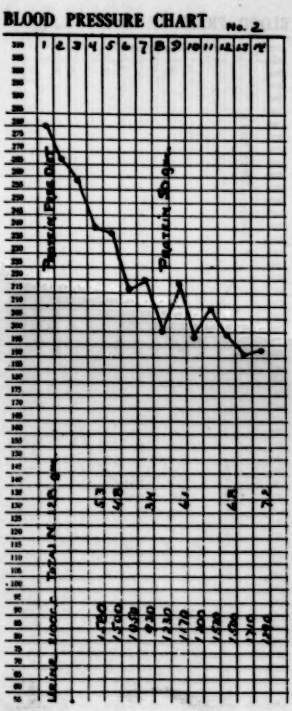
From this time until October, 1912 (five months) a diet approximating 60 gm. protein was prescribed but owing to the difficulty in maintaining the diet a protein free day was given every seventh day. During this period the only symptom complained of was an occasional headache. The blood pressure varied between 182 and 195 and she gained eight pounds. After this she disregarded advice because she "felt so well" and began to eat liberally of protein. Since then the blood pressure has gradually risen and the quantity of urine gradually increased but not until April 2, 1913 (seven months without diet restriction), have the symptoms become disagreeable. On this date she voluntarily requests to be placed under observation again.

CASE 3. (Chart 3.) September 19, 1912. Male. 44 years of age. Symptoms, dizziness, dyspnea, poor vision, cough when lies down. Very tired for eight months. Known to have high blood pressure since onset.

Examination. Slight arteriosclerosis. Right border of cardiac dullness 3 cm., left 12.5 cm. from mid sternum. Systolic murmur all over. Aortic second accentuated. Urine, albumin trace. Rare hyaline cast.

* These additions were made on the basis that 60 gm. of protein are contained in:
8 ounces of fresh beef,
12 ounces of fresh fish,
2 quarts of milk,
9 eggs,
21 ounces of white bread,
13 ounces of oatmeal (uncooked).
Better results are obtained if the food is weighed, but one can approximate the amounts as follows:
One cubic inch of meat weighs an ounce and contains about 5 gm. of protein.
One ordinary slice of bread weighs an ounce and contains about 3 gm. of protein.
Three tablespoonfuls of oatmeal (four tablespoonfuls if cooked) weigh 36 gm. and contain about 6 gm. of protein.
For additional variety the protein content of the common food materials can be obtained from Atwater and Byrant's tables.[9]





At the end of the protein free period (seven days) the symptoms entirely relieved. Has not felt as well for two years. Left border of cardiac dullness 9.5 cm. from mid sternum. Otherwise examination the same. Weight reduced from 180 to 174. Intentional lowering of full value of the diet.

March 15, 1913 (six months later). Feels strong and energetic. Has worked every day. Has not followed the prescribed diet of 60 gm. protein and while the blood pressure had increased from 150 to 200 there has been no return of symptoms.

CASE 4. (Chart 4). December 3, 1912. Female, 45 years of age. Known to have high pressure for two years. Symptoms, dyspnea, palpitation, polyuria, weakness.

Examination. Hgb. 80%. No arteriosclerosis. Right border of cardiac dullness 2.3 cm., left border 10.5 cm. from mid sternum. No murmur. Aortic second accentuated. Urine, albumin, slight possible trace. Rare hyaline cast. At the end of the protein free period (eight days) all symptoms had practically disappeared and she felt strong.

Left border of cardiac dullness 9.5 cm. from mid sternum. Otherwise no change in the examination. Weight increased from 141 pounds to 146 pounds. No subsequent observation.

CASE 5. (Chart 5). February 6, 1913. Female, 45 years of age. Headache for one year, dyspnea, slight precordial pain and swelling of the ankles several months. Poor vision three months. Tired all the time.

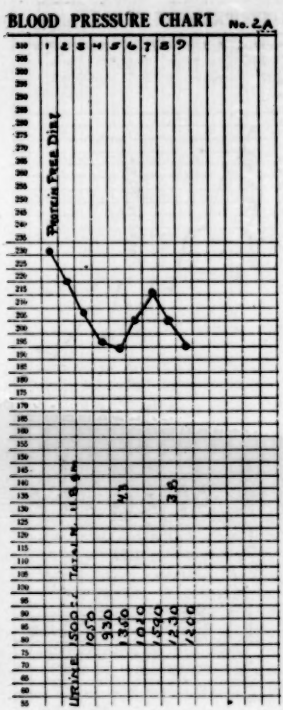
Examination. Albuminuric retinitis. Right border cardiac dullness 2 cm., left border 10 cm. from mid sternum. Systolic murmur at apex. Aortic second accentuated. Slight edema of ankles. Urine, albumin, slight trace. Rare hyaline cast.

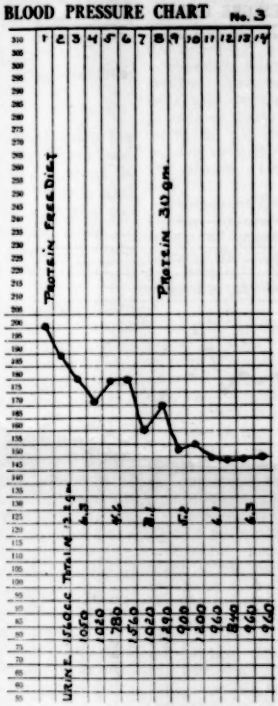
At the end of the protein free period (eight days) all symptoms were relieved and the eyesight improved. Left border of cardiac dullness 9 cm. from mid sternum. Otherwise no change in the examination. Weight increased from 150¼ pounds to 152½ pounds.

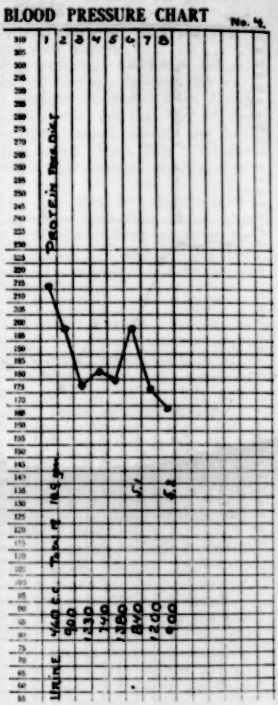
March 30, 1913 (six weeks later). Working every day. Feels more tired than usual at end of the day. Occasionally has slight pain around the heart. Eyesight improving.

Examination. No change noted in the heart. No edema of legs. Blood pressure has increased from 160 to 200. Diet of 60 gm. protein has been maintained as shown by the urinary nitrogen.

Observations are being continued with a protein free diet one day in seven.







CASE 6. (Chart 6.) March 1, 1913. Male, 52 years of age. Lead colic 20 years ago. Polyuria and up at night to urinate for some years. Headache and dyspnea for nine months. Smothering sensation in chest five weeks. Unable to work for past month.

Examination. Considerable degree of arteriosclerosis. Right border cardiac dullness 3.5 cm., left border 12.6 cm., from mid sternum. Systolic murmur at apex. Aortic second sharply accentuated. No edema.

Protein free diet for nine days.

Examination of blood, March 1, 1913 (first day of diet). Total nitrogen 44 mg. in 100 cc. (Normal does not exceed 30 mg.) Urea nitrogen 30 mg. in 100 cc. Uric acid 3.1 mg. in 100 cc. March 10, 1913. Total nitrogen 24 mg. in 100 cc. Urea nitrogen 14 mg. in 100 cc. Uric acid 3.5 mg. in 100 cc.

At the end of the period the symptoms had practically disappeared and the weight increased from 112 pounds to 117⅛ pounds. The left border of cardiac dullness was 12 cm. from the mid sternum but no other change was noted in the heart. Albumin and casts were still found in the urine.

Subsequent History. March 28, 1913. Has taken the diet approximating 60 gm. protein. Feels well and strong, ready to go back to work. Blood pressure has increased from 180 to 225.

CASE 7. (Chart 7.) December 4, 1912. Male, 51 years of age. Known to have a blood pressure between 180 and 220 for two years. Only complaints are dyspnea upon exertion (which might be explained by his weight of 208 pounds) of tireing more readily than usual and of passing large quantities of urine.

Examination. No cardiac enlargement. Sounds normals. Urine negative.

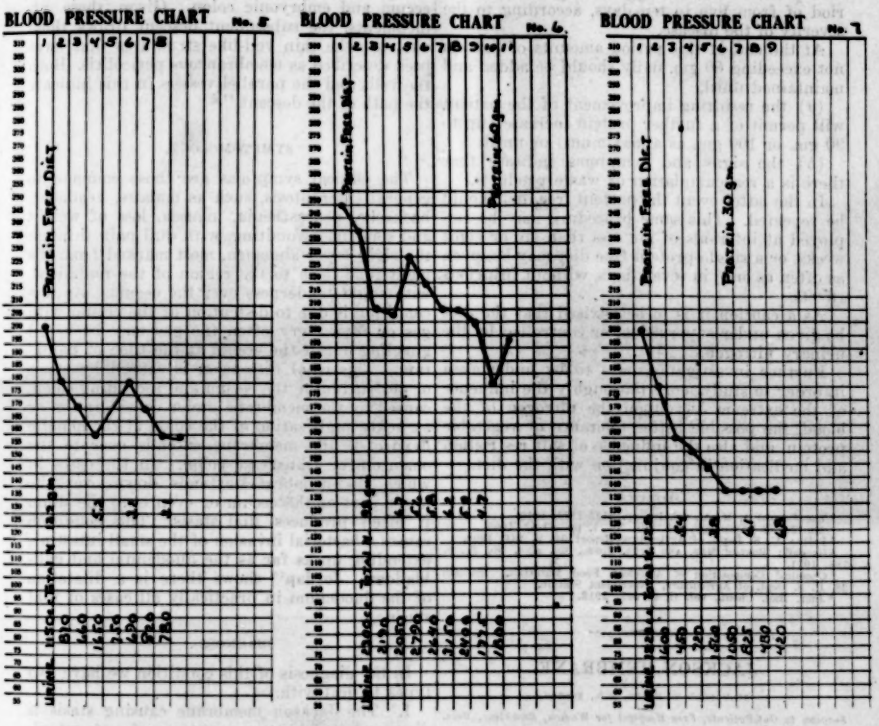
Protein free diet for five days. Weight at the end of the period reduced from 208 pounds to 202 pounds (intentionally).

Subsequent History. Since this time has taken a diet approximating 90 gm. protein daily. Last seen March 1, 1913. During this interval five blood pressure observations have been made, the pressure never recording higher than 160. Has been perfectly well.

The diagnosis of an early stage of chronic nephritis is based entirely upon the age, the absence of other causes for a high pressure and the increasing quantity of urine.

SUMMARY OF RESULTS OBTAINED IN SEVEN CASES.

In every case the symptoms were promptly and markedly relieved. In every case there was a distinct fall in blood pressure.



In all but one case (7) the sudden fall in blood pressure was followed by a temporary rise on the fifth or sixth day. The explanation of this occurrence is not yet clear.

In all but one case (6) the quantity of urine fell to normal. In all but one case (7) there was a resulting decrease in the size of the percussion borders of the heart. In all but two cases (3, 7), in which the full value of the diet was intentionally lowered, there was a gain in weight. No particular change was noted in the character of the cardiac murmurs or the intensity of the second aortic sound. No particular change was noted in the quantity of albumin or the presence of casts in the urine. Three of the cases (1, 2, 7) were able, at the end of the period of restriction, to ingest from 60 gm. to 90 gm. protein without a return of the signs and symptoms. Three of the cases (3, 5, 6), judging from the gradual increase in the blood pressure and increase in the quantity of urine, still have some retention of wastes with a diet approximating 60 gm., yet they have continued practically free from symptoms for periods of from one to six months. That the accumulated waste products of nitrogenous metabolism are excreted as a result of such a severe restriction is proven by the blood examination in Case 6. Inasmuch as this is the most advanced case in the series there is little doubt but what a similar elimination occurred in all the cases.

CONCLUSIONS.

A protein free diet for a continuous period of from five to ten days can be maintained without harm to the individual.

With such a restriction the accumulated end products of protein metabolism in the blood are promptly eliminated, the nitrogen content of the blood falls to normal, and the kidneys and heart are given an opportunity to rest.

Such a restriction may be followed by a low protein diet for a considerable period of time, even in advanced cases, without a return of the disagreeable symptoms.

The following procedure, which was followed in the cases herein reported, is advised as the dietary treatment of chronic diseases in which there is a retention of nitrogenous end products.

A protein free diet should be given for a period of from five to ten days, according to the severity of the disease.

At the end of this period amounts of protein not exceeding 60 gm. daily should be added and maintained until,

(*a*) the resulting improvement of the patient will permit of a further protein increase (up to 90 gm. or 100 gm. as a maximum) or until,

(*b*) the signs and symptoms indicate that there is a reaccumulation of waste products.

In the latter event the protein free diet should be repeated. This same procedure may be employed at intervals of not less than six or eight weeks, or a single protein free diet may be given as often as once in seven days, without injurious effects.

As a caution it is to be advised that the diet be given under supervision, or controlled by the urinary nitrogen.

Further investigations are to be undertaken in order to study more thoroughly the influence of the extreme diet upon the nitrogen of the blood, the possible better tolerance of vegetable protein, and also the influence of salt restriction and medication in conjunction with the diet.

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JACKSON MEMBRANE.

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ETIOLOGY.

THE etiology of this membrane has been the cause of a great deal of discussion in the last few years. Hofmeister,[1] Connell,[2] Crossen,[3] Pilcher,[4] Hertzler,[5] Girster,[6] and Binnie,[7] consider it to be a primary or secondary pericolitis, while Mayo[8] believes it to be a fold of peritoneum caused by the cecum boroughing behind the parietal peritoneum, in a delayed descent. Dr. Flint[9] in his recent article believes from the dissection of a number of human embryos in different stages of development, that it is due to an embryonic fusion, between the rotated intestine and the posterior portion of the parietal peritoneum, in some cases the fusion extending to the omentum.

He says, "usually the fusion takes place only in the approximal portion of the peritoneum, and is probably due to some specific chemotactic action, as other parts of the peritoneum at this stage of embryonic life do not participate in this process. At times, however, the fusion is excessive and the attachments are formed with the cecum in the subhepatic position, extending over onto the lateral and ventral aspects of the cecum and embryonic colon. Given these attachments, the subsequent descent draws them out onto the thin veil-like structures that have been described as membraneous pericolitis. Both the veils and the parallel vessels in this indicate the path of the descent."

SYMPTOMOLOGY.

The clinical symptoms are those common to general enteroptosis, such as malaise, headache, backache, neurasthenia, nausea, loss of weight and sometimes vomiting, with dull pain through the right lower abdomen, most marked from the right iliac fossa to the region of the umbilicus, with slight tenderness over the cecum. As this condition is due to distention of the cecum with gas or feces, very often the gas may be heard gurgling out of the cecum at the time of palpation. This cecal distension is caused by stasis or obstruction to the cecum and ascending colon, caused by the membrane under consideration or an acute angleization of the colon at the hepatic flexure, if the membrane extends over to the omentum or transverse colon. In the cases in which the membrane extends down over the lower part of the cecum or even onto the ilium it often produces ilial stasis. This condition causes a bacterial invasion of the small intestine, extending up as far as the duodenum and gallbladder. Jordan[10] shows there is a dilatation of the duodenum in practically all cases of ilial stasis.

DIAGNOSIS.

In the diagnosis of this condition we have two types to deal with.

1. The Jackson membrane causing stasis is diagnosticated by the symptoms of auto-intoxication and by the x-ray examination of the intestinal tract, showing a pathological residue remaining in the ilium with a dilated duodenum or a residue in the cecum or ascending colon showing cecal stasis.

2. That due to obstruction, caused by constriction of the bowel, which may occur at any point in the cecum, ascending colon or first half of the transverse colon or extending over an area of several inches as seen in Plate No.1. The obstruction may be due, however, to an acute angleization at the hepatic flexure as seen in Plate 3. The membrane not only causes obstruction but greatly enhances the peristaltic action of the bowel as seen in Plates 2 and 3.

The amount of stasis, site of obstruction and the peristaltic activity can only be diagnosed by an x-ray examination, as seen in Plates 1 and 1a.

TREATMENT.

The important question in the treatment of this condition is, whether it is causing stasis or partial obstruction. If neither of these conditions are present the membrane can cause no



I.



Ia.



II.



III.

harm and medical or surgical intervention is unwarranted.

If the Roentgen examination shows stasis or partial obstruction the membrane should be severed and all raw surfaces covered with peritoneum or omentum. In cases where this cannot be done Lane's ileosigmostomy should be performed.

CASE 1. (Plates 1 and 1a.) Mrs. I. T., age 31, one child age 9. Last four or five years dull pain in right lower abdomen, attacks of pain lasting from two to three days with slight tenderness over cecum. Bowels always constipated. When bowels most constipated pain more severe. Menstruation normal.

Examination. Pelvis negative, slight tenderness on deep pressure over cecum, no muscular spasm. Fecal mass almost always palpable in cecum. Temperature normal.

Roentgen Examination of Intestinal Tract. (Dr. Percy Brown.) Plate taken six and one-half hours after bismuth meal, shows bismuth in ileum and cecum, entering transverse colon.

Plate taken eight hours later shows cecum, hepatic flexure, transverse colon filled with bismuth. First part of transverse colon shows irregular outline with bowel but partially filled.

Several plates taken at different intervals show this condition present.

Diagnosis. Partial obstruction to first part of transverse colon and general ptosis.

Operation. Right rectus incision. Jackson membrane found, extending over cecum onto and constricting first four inches of transverse colon. Appendix normal. Appendix excised, membrane severed, raw surface covered with omentum. Uneventful recovery, patient leaving hospital in two weeks.

After patient was out of bed on eighth day bowels moved regular without cathartic. Patient gained fifteen pounds in eight months. No pain or tenderness, bowels regular.

CASE 2. (Plate 2.) Miss E. W., age 25, single, referred to me by Dr. Ford. Cyst of left ovary and appendix removed four years ago. Pain in right lower abdomen off and on for last ten years. More severe last two years with attack of pain and soreness lasting one to four days. Dismenorrhea. Bowels slightly constipated, general malaise, headache and at times distressed and nauseated after eating. Lost ten pounds last two years.

Examination. Pelvis normal, slight tenderness over cecum, which was always much distended with gas.

Roentgen Examination of Stomach and Intestines. (Dr. W. J. Dodd.) Plate taken six and one-half hours after bismuth meal, shows no evidence of residue in the stomach. Most of the bismuth is in the ileum, cecum and hepatic flexure. Hepatic flexure is quite high, being four inches above the crest of the ilium.

Plate taken eight and one-half hours later shows a small amount of bismuth still in the ileum. Cecum, hepatic flexure and transverse colon are filled with bismuth. When in the prone position, the middle of the transverse colon crosses just above the brim of pelvis. Cecum, hepatic flexure and ascending colon seem to be matted together.

Plate taken thirty hours later shows a mass of bismuth still in the cecum, transverse and descending colon, filled with bismuth and there is some in the sigmoid.

From this set of plates we are led to conclude that in addition to a hammock shaped colon, there are adhesions between the cecum and ascending colon. Cecal stasis.

A series of four plates were then taken after the second bismuth meal. Outline of stomach normal. Pyloric sphincter normal. First portion of duodenum, irregular and somewhat elongated and is in close proximation with the hepatic flexure.

Although the first portion of the duodenum is irregular, it is normal in position and I believe this irregularity is due to adhesions extending from the cecum to the duodenum.

Diagnosis. Extensive adhesions involving the cecum, ascending colon and duodenum.

Operation. Right rectus incision. Cecum three times normal size. Jackson membrane extending from three inches above cecum up to hepatic flexure and onto first part of transverse colon, causing marked angleization at hepatic flexure. Adhesions extending from hepatic flexure to duodenum. Lane's kink caused by a membrane an inch wide, extending up over ileum one and one-half inches from cecum.

Kink freed, Jackson's membrane severed, raw surfaces covered with peritoneum, cecum plicated longitudinally. Uneventful recovery.

CASE 3. (Plate 3.) Mrs. A. S., age 43, three children, referred to me by Dr. Drew. Pain in right lower abdomen most all the time during the last three or four years. Pain severe enough to keep patient awake at times during last four weeks. Neurotic temperament. Menstruation normal. Bowels always constipated more marked last four weeks.

Examination. Pelvis normal. Right kidney palpable with excursion of about two inches. Slight tenderness without spasm in right iliac fossa temperature and pulse normal.

X-ray examination of right kidney shows no calculi in kidney or ureter, by the injection of collargulum the x-ray shows the outline of the renal pelvis to be normal (therefore no hydronephrosis).

Roentgen Examination of Stomach and Intestines. (Dr. W. J. Dodd.) Plate taken six and one-half hours after bismuth meal shows no residue in stomach. Bismuth is in ileum, cecum and hepatic flexure. Plate taken thirty-eight hours later shows a mass of bismuth still in the cecum and transverse colon. From these plates we are led to conclude that there are adhesions between cecum ascending and transverse colon. Cecal stasis.

Another series of plates after a second bismuth meal shows the stomach, pyloric sphincter and duodenum to be normal.

Diagnosis. Adhesions between cecum, ascending and transverse colon, causing cecal stasis.

Operation. Right rectus incision. Jackson membrane found, extending over cecum, ascending colon to first part of transverse colon, causing acute angleization and partial obstruction at hepatic flexure. Appendix normal. Appendix excised. Jackson membrane severed, raw surface covered by peritoneum and omentum. Uneventful recovery, patient leaving hospital in twelve days. Ten months after operation no recurrence of pain, neurotic symptoms much improved. Constipation relieved, patient steadily gaining weight.

CONCLUSIONS.

The Jackson membrane is of embryonic origin.

All cases of suspected Jackson membrane should have a thorough x-ray examination of the gastro-intestinal tract.

All cases showing intestinal stasis of obstruction should be treated surgically.

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Clinical Department.

A CASE OF EMPYEMA DUE TO BACILLUS COLI.

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THE case that follows was brought to my attention Oct. 31, 1911, by means of pus taken from the patient at time of operation and given to the class in bacteriology as a routine sample for examination. On cursory examination with Loeffler's methylene blue a provisional diagnosis of staphylococcus was made. The students agreed with this diagnosis but reported that it was Gram negative. On this account and inasmuch as an empyema from a Gram negative staphylococcus seemed rather rare, it seemed best to carry the examination through further bacteriological procedures.

The clinical history was as follows:—

Mr. P., of ——, Ia., 45 years old, white, male, married and of good habits, was referred to the University Hospital by J. A. White, M.D., of Cedar Rapids, Ia., and entered the surgical service of William Jepson, M.D.

On examination nothing was obtained from either past or family histories. He said his present illness began August 12, 1911, when he was taken suddenly ill with severe pain in right chest followed by a chill. On the following day had two more severe chills. This attack was diagnosed as pneumonia. Patient showed no improvement, the pain continued with shortness of breath, and high temperature (104° F.) during first ten days of illness. The acute symptoms diminished somewhat, but shortness of breath and fever continued. On entrance to hospital he complained of pain and distress in right side. At this time temperature was 103° F., pulse 140, and respiration 36. The right pleural cavity was aspirated and pus found present. Physical examination revealed pathology in right chest only. There was dullness from apex to base both anteriorly and posteriorly with slight respiratory movement and no tactile fremitus. The breath sounds could not be heard in any part of the right side. There was no displacement of heart.

White blood count gave 28,000 leukocytes of which 85% were of the polymorphonuclear variety.

The patient had pleural cavity drained and made an uneventful recovery.

On examination of the pus by smears coccus-like microorganisms were seen arranged in the characteristic irregular grouping of staphylococci with a few in pairs and short chains. Many polymorphonuclear leukocytes were present in each field. The organism decolorized by Gram's method of staining.

Portions of the pus were smeared out on slant agar and on blood serum media and inoculated into bouillon. In twenty-four hours the bouillon showed some turbidity throughout and some dirty-white precipitate at bottom of tube. On agar there was along the line of inoculation a slightly raised whitish growth with rounded smooth edges. In blood serum a similar growth was obtained.

Smear examination again gave what seemed to be a Gram negative staphylococcus. In forty-eight hours no other change was noticeable except extension of growth on the cultures, so stab inoculations were made in gelatin medium. No liquefaction followed. The original cultures were next re-examined and it was noted that a few long chains of Gram negative bacilli were present. The material was plated out with the idea to get rid of contamination. A colony of Gram negative coccoid organisms was fished and reisolated. In time the same chains were again found and besides it was now noted that here were practically nothing present except bacilli, varying very much in size. It now seemed as if we must be dealing with one of the colon group, so the organism was cultured out in the regular routine manner for that group. It was found that it would coagulate and make acid litmus milk, form indol, would ferment dextrose, levulose, galactose, mannit, maltose, lactose, and dextrin with the formation of gas, but would not do so with saccharose. No motility could be observed. This proved the organism to be B. coli.

From this it is easily seen that morphological characteristics are unsafe at times in making bacteriological diagnoses.

The reported cases of empyema due to B. coli are very few. No attempt has been made to review the literature of the subject, but in a hasty running over recent reports no such report could be found. Osler in his "System of Medicine" states that empyema may be caused by the colon bacillus, but gives no history of any specific case.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, APRIL 9, 1913, AT 8.30 P. M. THE PRESIDENT, DR. CHARLES A. E. CODMAN IN THE CHAIR.

CASE OF CONGENITAL DIFFUSED LIPOMA OF THE FOOT AND LEG; WITH EXHIBITION OF A PATIENT.

DR. J. TORRENCE RUGH: The symptoms and diagnosis of this rare condition are discussed in the paper and the treatment reviewed. The patient is a

girl aged 6½ years with good family history. At birth there was marked enlargement of the second and third toes of right foot with a mass of fat underneath the front portion. There was no pain or tenderness and skin was normal in color and consistency. At six months the two toes were removed without difficulty. At 15 months a large mass of fat was dissected from under surface of the foot. The patient developed scarlatina in four days and part of flaps sloughed but healing took place eventually in two months. At 20 months enlargement of calf began of the same type as in foot. X-ray taken at six years showed no enlargement of bony structures. Specimen taken for examination from the foot mass showed a typical lipoma with no evidence of fibromatosis. Removal of masses will be attempted but failure with subsequent enlargement or recurrence of the mass will call for amputation above the margin of the upper mass.

THE NERVOUS SYMPTOMS OF PELVIC DISEASE.

Dr. F. X. Dercum: With the coexistence of pelvic disease and neurasthenia the pelvic symptoms may be more readily recognized by the patient and, therefore, become more prominent, because in neurasthenia the reaction of the nervous system to abnormal or pathologic impressions is greatly increased. In hysteria incautious remarks and injudicious statements by a physician may be very injurious. The suggestion of an operative procedure is accepted readily and sometimes a long series of operations has thus its beginning. It is hardly necessary to state that no relation exists between pelvic disease, epilepsy, chorea and other nervous diseases. The nervous symptoms which can be truthfully ascribed to pelvic disease are pain in the pelvis, pain referred to the back, to the top of the head, to the hips and to the thighs, with associated signs of general ill health. These symptoms cannot be dignified by the name of a nervous disorder, but are merely part of the symptom-group of the pelvic disease. Operation should be for the pelvic condition itself and not for the relief of an incidental nervous symptom. Operation is done just as we set a broken leg in an insane man, not because he is insane but because the leg is broken. It is important in considering operations upon neurasthenics to bear in mind that these patients are excessively sensitive to nervous shock. In such cases the operation, if not urgently indicated, may with advantage be preceded by a period of rest.

A MODIFICATION TO OBVIATE THE DEFECTS OF THE NEWER METHODS OF REPAIRING THE PELVIC FLOOR.

Dr. Barton Cooke Hirst: Injuries of the birth canal constitute more than half of all the diseases of women. All over the world there is a tendency to discard the older operations on the perineum and posterior vaginal walls such as Hegar's and Emmet's and to prefer the transverse incision with dissection of the recto-vaginal septum and to expose the levators and deep transverse perineal muscle, a method developed from Lawson Tait's original technic. The reasons for this unanimity of opinion would appear to be the failure of the older operations to expose and directly unite the muscles injured in parturition; the failure to restore to the pelvic floor the support and contour it possessed before childbirth. The newer technic, however, is not yet perfected. With a clear understanding of the injuries of the pelvic floor it is easy to devise a technic that shall actually expose all the muscles at the site of their original injury and that shall reunite them in their original anatomical relations. The modern transverse incision of the perineum, the recto-vaginal dissection and the junction of the injured muscles in the middle line do not accomplish either of these objects. It is possible to restore each one of the four muscles of the pelvic floor to its original condition, as in a nulliparous woman by the following technic: Incisions are made in the perineum and vagina as shown in the diagram. Flaps are then cut away and an incision is made on each side through the pelvic fascia to get at the levators and deep transversus perinei. These muscles are then joined. Finally the raw surfaces are united over the muscles as in the old Emmet operation, the perineal stitches uniting the superficial transversus perinei and bulbo cavernosus muscles where they are inserted in the perineal body. I am convinced that, however, this technic may be modified, the principles underlying it must be adopted in the successful operation of the future for the repair of the pelvic floor after childbirth.

MIDDLESEX NORTH DISTRICT MEDICAL SOCIETY.

The annual meeting of the Society was held April 30, 1913, at the New American Hotel at Lowell, Mass., Dr. J. B. Field, the President, in the chair. Fifty-five members were present. Resolutions on the death of Dr. Robert E. Bell and Dr. Merritt A. Long were read and accepted.

On the motion of Dr. J. A. Mehan it was voted to insert in the local newspapers on the first and second of each month, for three consecutive months, a notice to the effect that persons entitled to compensation under the Workmen's Compensation Act have the right to select their own physicians and are not obliged to accept the services of physicians provided by employers or insurance companies.

Dr. Howard K. Tuttle of the Tewksbury State Infirmary read a paper entitled, "Stab Wound of the Neck with Nerve Transplantation." The case which formed the basis of the paper was a man with an arm temporarily rendered useless by a stab wound of the brachial plexus. Through careful diagnosis and operation the patient was enabled to use a hammer in a blacksmith's shop with the affected arm. Stress was laid on the importance of early and adequate diagnosis of nerve lesions, together with the excellent results obtained through nerve surgery.

Dr. A. W. George of Boston read a paper entitled, "X-ray Diagnosis of Lesions of the Gastro-Enteric Tract." This paper was illustrated by x-ray plates, and was followed by discussion.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.

A meeting of the Essex North District Society was held at the Y. M. C. A. building in Lawrence, Wednesday, May 7, Dr. W. H. Merrill presiding.

The Workmen's Compensation Act was the subject of discussion, and the address was by Mr. Edward F. McSweeney of the Industrial Accident Board. In introducing the speaker, Dr. Merrill gave a brief history of the Act and its application to physicians, the meeting of the Norfolk District Medical Society at which the subject was considered by delegates from the Accident Board and from the District Societies of the State and of the Conference held with the Board at the State House on the following day, which resulted in the appointment of an Advisory Council of Physicians. Mr. McSweeney explained the many difficulties which the Board encountered in administering this law, but showed that with coöperation and reasonable consideration on the part of physicians, insurance companies, and the Accident Board, the law was likely to prove beneficent to all concerned. The fact that the insurance companies were wjlling to agree (although not so compelled by law) to the desire of injured persons to employ their own physicians moved the most prominent objections.

The discussion was opened by Dr. Durant and was followed by Drs. Snow, McAllister, Mudge, Anthony and Burgess. It was generally agreed by the speakers that the appointment of a committee of seven physicians to coöperate with the Accident Board promised to solve the apparent inequalities which had arisen in the administration of this law.

Dr. George W. Gay of Boston spoke upon the Medical Defense Act of the Massachusetts Medical Society and its administration and history since enactment in 1908. Upon motion of Dr. Merrill the Society voted its approval and continued support of this Act.

Dr. Francis W. Anthony of Haverhill was elected President for the ensuing year, and Dr. J. Forrest Burnham of Lawrence was re-elected Secretary and Treasurer.

HAMPDEN DISTRICT MEDICAL SOCIETY.

The April meeting of the Hampden District Medical Society was held at Cooley's Hotel, Springfield, Mass., April 15. Dr. Allen G. Rice presented a paper, "Some New Methods of Etherization." The subject of Intratracheal Anesthesia was discussed, a new and practical apparatus for administration of ether by this method was presented and explained, and the advantages of this method in certain cases were shown and cases cited in which it had been used with benefit. Dr. David Clark presented a paper on "Vagitus Uterinus," describing in detail a recent case seen by the writer and Dr. Rice presenting a résumé of the literature upon this subject. The third paper of the meeting was presented by Dr. R. H. Seelye upon "Uterine Fibroids." The danger of degenerative changes was pointed out and the necessity of thorough dilatation and examination when polyp is suspected was emphasized. Methods of differential diagnoses were explained. Owing to danger of degeneration, prognosis without treatment is unfavorable. Choice of operation was considered, with quotations from Mayo concerning procedure in various conditions.

The meeting was followed by the annual dinner of the Society.

Book Reviews.

The Collected Works of Christian Fenger, M.D., 1840-1902. Illustrated. Two volumes. Philadelphia and London: W. B. Saunders Company. 1912.

These two volumes constitute a record of the work of a "great surgeon and teacher." The Fenger Memorial Association was formed by the Council of the Chicago Medical Society, as a tribute to its namesake, and a fund has been collected which shall be devoted to medical investigation.

"In response to requests from Dr. Fenger's assistants and pupils, and to wishes expressed by many surgeons in various parts of the country, the directors of the Association have caused to be published these volumes, which contain nearly everything that Dr. Fenger has written. The articles published in Danish have been translated."

There are seventy-five monographs of varying length, and covering an enormous variety of subjects, beginning in 1871 with a consideration of endoscopy, and ending in 1901 with a paper on "Conservative Operations for Renal Retention." Each one shows plainly the characteristics of Dr. Fenger: careful, thorough, painstaking study, minute observation, logical reasoning and definite conclusions. To many surgeons these monographs are familiar. They should be read by everyone who is interested in the advance of the science. In later years the study of the genito-urinary tract was most definitely associated with Fenger's name, but at one time or another every great subdivision of surgery came within his careful enthusiastic scrutiny. The first volume contains a very interesting, but all too brief, autobiographical sketch, written in Danish while Dr. Fenger was staying in San Deigo in 1902, such an outline being "required of everyone who receives the order of Knight of Dannebrag."

It is unfortunate that this autobiographical sketch is not accompanied by a warm appreciation of this really great surgeon, an estimate which should have been written in warm words, by a friend, an associate and a surgeon. The personality and humanity of masters of surgery is almost as important as the results of their work.

The volumes are excellently printed and bound. The illustrations are fairly good.

Sex Education. By IRA S. WILE, M.S., M.D. New York: Duffield and Company. 1912.

In this volume the author undertakes to suggest and describe a definite method of imparting to the young that important information which passes nowadays under the name of sex educa-

tion. As an attempt to deal with a very difficult subject it is praiseworthy, even though one may not agree with all its details or suggestions. The author describes childhood as the age of mythology, puberty as the age of chivalry, and adolescence as the age of civic awakening, and outlines the method of instruction supposedly best suited for each. It may be questioned, however, for instance, whether for children the suggested story of the magic room and the teeny, tiny egg, as an explanation of how the baby came, is any improvement over, or even a desirable substitute for, the fine and beautiful old Teutonic myth of the stork, which remains as inalienable a right of childhood as the myths of Santa Claus or of Olympus. The story of the magic room may more nearly approximate the scientific facts, but it is not magical and it is not a myth. Nevertheless, the book is much to be commended as a frank, temperate and rational discussion of a very important and critical problem. It closes with an excellent biblography of literature on the subject.

Clinical Studies for Nurses. A Text-Book for Second- and Third-Year Pupil Nurses, and a Handbook for all who are engaged in caring for the sick. By CHARLOTTE A. AIKENS, Second edition. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This volume is intended for more advanced students in nursing. Its first edition was reviewed in the issue of the JOURNAL for March 24, 1910 (Vol. clxii, p. 394). In this second edition, the chapters dealing with mental diseases have been largely rewritten; paragraphs have been added on anesthesia, operations, pellagra, and poliomyelitis; and many additions have been made in the way of practical points in nursing. The volume is increased from 510 to 569 pages, and the number of illustrations from 178 to 189. The terminal section consists of 600 questions for self-examination and review. The first appendix contains notes and tables on a number of hospital and invalid dietaries; the second deals with the preparation of surgical materials; the third consists of miscellaneous notes. The book should continue a useful guide for teachers and students of nursing.

Contribution to the Histologic Study of the Hypophysis During Gestation. By DR. ALFRED SIGURET. Paris: Jouve and Company. 1912.

This thesis, with its amusingly elaborate multiple dedication, presents a characteristically Gallic cellular study of the pituitary in pregnancy. After a summary of the normal histology of the organ and of the various modifications described in it during gestation, the author describes the material and method of his experiments on rabbits and guinea-pigs, and the results derived therefrom. He finds that during pregnancy the glandular lobe of the hypophysis is the seat of manifest histologic modifications, among which are enlargement of the cellular columns, generalized hypertrophy of the cells and of the nuclei, and diminution in the number of chromophobic cells, with increase of the siderophilic cells. Colloid substances were not observed. These modifications appear at the beginning of pregnancy and do not seem to increase progressively with the age of gestation. The work is microscopic in method and temper, and though its facts be undoubted their important bearing is hardly apparent.

The Care and Treatment of European Children in the Tropics. By G. MONTAGU HARSTON, M.D., M.R.C.S., L.R.C.P. New York: William Wood and Company. 1913.

In his introduction to this book, Sir Patrick Manson points out that the teaching of tropical medicine has hitherto had reference to tropic diseases only in adults, not in children, and that the literature has been destitute of a work on tropical pediatrics. This lack the author aims to supply in the present manual for newly-arrived and junior practitioners in the tropics. After brief consideration of climatic factors, the incidence of disease, certain questions of hygiene and general welfare, and the care of European infants in the tropics, he deals in a series of 21 chapters with the principal tropic diseases as they affect children, particularly with reference to their symptomatology and treatment. There is an excellent terminal chapter on repatriation. The book is well illustrated with a series of 28 plates, of which three, including the frontispiece, are colored. It should immediately fill an important place as the only standard work on its subject.

Second Report of the Government Bureau of Microbiology. Sydney: William Applegate Gullick. 1912.

This second report deals with the work performed by the bureau during the years 1910 and 1911. This work very clearly separates itself into two main divisions, routine and investigation. Under the former are included the examination of dairy products, of materials, and of specimens from diseased persons, animals and plants, the preparation of vaccines, antitoxins, sera and bacteriologic products, and medico-legal examinations. Under the second division are included investigation of infectious diseases and pathologic conditions of men and animals, animal parasites, diseases of plants, and hygienic and economic examinations. The volume contains an immense amount of valuable material in well classified and systematic form.

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CANCER.

THE cancer situation is suggestive of the inexorable law of compensation upon which Emerson dwelt. The medical profession, with its humanitarian allies, has in recent years fought with much success tuberculosis, the veritable Captain of the Men of Death, and has notably reduced the percentage of its victims. The cancer mortality seems *pari passu* to have undergone a reciprocal increase. Young people do not die so much of tuberculosis—that disease of adolescence and early middle life; they live rather, many of them to succumb later to cancer. The mortality from this disease constitutes a very substantial proportion of that from all causes at ages 45 and over; and most deaths from this disease in the United States occur at ages 60 to 64. The law of compensation again asserts itself in that, whilst tuberculosis destroys chiefly the submerged strata of civilization; cancer, on the other hand, does the large part of its gleaning rather among the well-to-do in life, those who have never felt the stress of poverty, those accustomed to sanitary and eupeptic existence. In London, for example, the greatest cancer mortality is not in the East End, in "Darkest London"; but in Hempstead, Marylebone and Chelsea, which are of that city's wealthiest vicinities. In New York the like phenomena obtain. Patrician cancer has a predilection for the homes of the prosperous, scorning those of the squalid and the miserable; it is comparatively infrequent (although, of course, it does occur) in prisons, workshops and insane asylums. Cancer loves a shining mark, it has a ravenous penchant for the illustrious, those of great worldly importance, whom communities and nationalities can ill spare, those who have, through many years of superb activity, fairly earned *otium cum dignitate*, a serene and respected old age.

Most urgent, then, should be the elaboration of a prophylaxis and cure of cancer. For decades past medical scientists have been patiently and most zealously working on cancer problems; and their efforts have been and are being most nobly seconded by laymen and women able to provide the means by which such work can be done. As yet, however, only in the knife lies any hope of recovery from cancer; nor does surgery help, either, unless it be prompt and radical. And so vital is this matter to humankind that great medical bodies—the Clinical Congress of Surgeons of North America and the American Gynecological Society, are appealing to the lay press for education of the public (including nurses) in the recognition of this disease as early as possible; for only in its incipiency is cancer amenable to surgery. Herein are American surgeons following the lead of their German confreres, who have begun an anti-cancer propaganda. An essential factor in the German campaign is the urging all who have, or surmise they have, the initial symptoms of cancer to seek regular medical advice at once, either privately or in dispensaries, and not to waste precious time dealing with those who have not expert knowledge.

THE STRANGE CASE OF KASPER HAUSER.

Among the numerous cases of arrested mental development in children from simple sequestration of the individual, there is none of greater interest than the remarkable case so well described by Tredgold.*

In May, 1826, a boy of about sixteen years of age appeared near the gates of Nuremberg. He could not give any account of himself, or tell who he was or how he came there. He was very pale and of slight build. His feet were in such condition as to lead those who found him to suppose that he never had worn shoes. When he tried to walk he walked in the manner of a little child. On questioning him all the words that he could speak were "I will be a trooper as my

* "Mental Deficiency." London, 1908.

father was." He was hungry and thirsty, but would eat nothing except bread and water. In his hand there was a letter saying that he had been left with the writer, who was a poor laborer with ten children, in October, 1812. He could write a little and when a pen was placed in his hand he wrote the words "Kasper Hauser."

This youth was adopted by the Town of Nuremberg and his education was undertaken. He had no knowledge of the simplest facts. After his education progressed favorably for sometime he became ill and his education was stopped. After a time he progressed sufficiently to be able to speak. He said that he had always lived in a small cell, always underground; that when he awoke he found near him some bread and water, but never saw the person who gave it to him.

For a time he made great strides in mental development, but this was arrested and he showed no real capacity for work at any time. On Oct. 17, 1829, he was wounded by a stranger. In December, 1833, he was mortally stabbed by a stranger at Anspach, and died soon after. Autopsy showed a thickened skull and rather small brain which did not completely overlap the cerebellum. The convolution was smaller than normal.

The mystery of this youth's appearance and death has never been solved. It has been considered that he was the heir to a principality and was sequestrated in this manner to favor another dynasty. At all events the case exemplifies in a remarkable manner the effect of a prolonged isolation and non-use of the mind from childhood.

APOLLO SMINTHEUS AND THE PLAGUE.

It is seldom that the demonstration of a supposedly new scientific fact does not recall at least its adumbration, if not its definite earlier realization in remote times. An interesting example of this historic premonition, within recent years, is the recognition of the rat as a carrier of bubonic plague infection. It appears that from the most ancient days all rodents have been regarded with superstitious aversion as messengers of pestilential evil. In the Greek temple of Apollo at Chryse, for instance, there was a statue by Scopas, representing the deity with a mouse under his foot, apparently intended to symbolize the god of medicine crushing the malevolent agent of human destruction.

In December, 1899, in an article in the *Journal of Tropical Medicine* (Vol. II. p. 19), Dr. Sambon commented in part as follows on this early recognition of the connection between rodents and the plague:—

"This all important fact in the etiology of plague was so well known to the ancient Greeks, that in Asia Minor, at the very door of plague, they worshipped Apollo as . . . the destroyer of rats. This awful divinity was represented on monuments treading on a rat. In Roman times, when Aesculapius replaced the more ancient god of medicine, we again find the same fact recorded on a coin of Lucius Verus, struck at Pergamum. It represents Aesculapius with a rat at his feet, and a small naked figure standing by with arms outstretched."

Apollo, the destroyer of rats, was known by the epithet *σμινθεύς*, which is etymologically an abbreviated form for *σμινθοφθόρος*, "mouse-destroyer," from *σμίνθος*, the old Cretan word meaning mouse. Temples of Apollo Smintheus existed in several parts of Greece, and Strabo refers to one of these as a Sminthion. Under this term the god was invoked, as when, for example, in Homer's Iliad (I, 37), Chryses implores Apollo's aid in vengeance against the Greeks:—

"κλῦθί μευ, ἀργυρότοξ,' ὃς Χρύσην ἀμφιβέβηκας,
Κίλλαν τε ζαθέην, Τενέδοιό τε ἶφι ἀνάσσεις,
Σμινθεῦ, εἴ ποτέ τοι χαρίεντ' ἐπὶ νηὸν ἔρεψα."

It is true that Apollo is often depicted, as in the above instance, bringing the plague as well as averting it; but that is not at all inconsistent with his divine character, or indeed with the primitive conception of the physician as having the power to cause as well as to cure disease. In any event the fact is of peculiar interest as representing an almost prehistoric recognition, probably based on unconscious, empiric, phylogenetic observation, of the association between rats and pestilential visitations of the plague, centuries before the complete modern scientific demonstration of their close etiologic relationship.

Pure Ice in Drinking Water.—Report from Washington, D. C., states that on May 17 the United States Public Health Service issued an ordinance requiring that all ice used to cool drinking water on passenger cars and inland steamers must be inspected and certified as pure by State or municipal boards of health.

THE DISCOVERY OF THE LARYNGOSCOPE.

GARCIA'S own words concerning his great discovery are of interest. They are taken from an article in *la Chronique Médicale* for February, 1913:—

"On a fine day in September, 1854, I was walking near the Palais Royal, thinking of my constant idea, so many times flouted as impossible, but always returning to me more and more insistently. Suddenly I had a vision of the two mirrors for laryngoscopy in their respective positions. This vision was as clear as if the mirrors were actually before my eyes. I ran immediately to Charrière to ask him to see if he did not have, perhaps, a little mirror mounted on a long handle. He told me that he remembered that he had shown a dental mirror like this in London in 1851, which was at that time declared to be unpractical. He hunted for it, found it and sold it to me for six francs. Immediately I went to another store and bought a common hand mirror. Then I ran home, impatient to commence my experiment.

"I warmed the little mirror by plunging it into warm water and wiping it carefully. I introduced it into my mouth and placed it against my uvula. Meanwhile I directed a ray of sunlight upon the glass in my hand. I then had the great joy of seeing my glottis wide open and so clearly that I could even see a part of my trachea. When my first agitation was a little bit over I started in to study more carefully the phenomenon presented to my eyes. The way that my glottis opened and shut without a sound filled me with astonishment."

After a year of autolaryngoscopy, Garcia communicated the result of his observations and a description of his laryngoscope to the Royal Society of London. His communication was very coldly received, the members declaring that his invention was of no practical importance.

Two years afterwards Professor Turck of Vienna, a neuropathologist, accidentally heard of Garcia's invention. He at once understood that the laryngoscope was of more use than to merely serve as a help in studying singing and that it was to render the greatest service to pathology. Thus, from the autolaryngoscopy of the artist Garcia, Turck evolved the science of laryngology.

HALLUCINATIONS FROM FLUE-GAS POISONING.

IN the issue of *Science* for May 9, Schneider reports his investigation of a supposedly "haunted" Boston house, whose inhabitants had experienced repeated auditory, visual, and somatic hallucinations, especially during the night. These phenomena he traced to a defect between the fire-box and flues of a hot-air furnace, whereby the atmosphere of the house was invaded by leaking gases of incomplete coal combustion. These gases, chiefly sulphurous oxide and carbon monoxide, produced a chronic intoxication of the inhabitants, characterized by anemia, malnutrition, loss of psychic power and diminished physical vigor, with acute nocturnal exacerbations which caused the sensory and mental hallucinations. This case the author cites to emphasize the often unsuspected risks of flue-gas poisoning from defective hot-air furnaces, and to suggest the likelihood of similar mechanistic explanation for other psychic and spiritualistic manifestations.

MEDICAL NOTES.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.—At the thirty-seventh annual meeting of the American Dermatological Association, held at Washington, D. C., May 6, 7 and 8, 1913, the following officers were elected for the ensuing year: President, James MacFarlane Winfield, of Brooklyn; Vice-President S. Pollitzer of New York; Secretary and Treasurer, Oliver S. Ormsby, of Chicago; Member-of-Council, William A. Pusey of Chicago. Chicago was selected as the next place of meeting.

FLEXNER'S ANTIMENINGITIS SERUM.—In the issue of the *Journal of Experimental Medicine* for May, 1913, Dr. Simon Flexner presents the final report on a series of 1294 cases of epidemic cerebrospinal meningitis treated with the antimeningitis serum prepared and distributed by the Rockefeller Institute for Medical Research. Of these cases, 400 died, and 894 recovered more or less completely. The contrast of this mortality, 30.9%, with the usual mortality of 65 or 70% from this disease, indicates clearly the value of this method of treatment. Moreover, it not only produces a great decrease of fatality, but it shortens convalescence and diminishes the incidence of serious sequelae in those who recover. Flexner's antimeningitis serum, therefore, stands second only to diphtheria antitoxin as a curative agent. Its efficacy depends largely on the promptness of its administration.

Harvard Medical Expedition to the Tropics.—Report from Panama states that the party of investigators from the Harvard Medical School left that city on May 10 for Guayaquil, Ecuador. This party, which consits of Dr. R. P. Strong, Dr. E. E. Tyzzer, and Mr. C. T. Brues, has gone to study tropical diseases in Ecuador and Peru.

Increase of Cancer in England.—The British Society for the Relief and Prevention of Cancer has recently issued a summary of mortality statistics from cancer for the period from 1851 of 1910. These figures show that in sixty years the annual number of deaths from cancer has increased from 17,365 to 43,134, representing a rate increase from 497 per million to 960 per million. At this rate, within five years the deaths from cancer will be more than those from tuberculosis, and cancer will rank first as a cause of mortality.

Decreasing Death-Rate in Panama.—A recent report by Dr. Gorgas from Panama shows that in 1912 the annual death-rate among employees in the Canal Zone was only 7.14 per thousand, as against 10.42 in 1911 and 45.73 in 1905.

BOSTON AND NEW ENGLAND.

Continuance of Local Epidemics of Tonsillitis.—The epidemic of streptococcic tonsillitis in Canton, Mass., which we noted in last week's issue of the Journal, continues in somewhat abated form. Several new cases of the disease have occurred in families previously infected, and there have been three more deaths, making a total of 19. Meanwhile 47 cases of similar tonsillitis were reported among students at Wheaton Seminary, in the neighboring town of Norton; 17 cases in Easton; 8 in Norwood, and one in Milton. No more cases have occurred in Sharon, and as yet there have been no fatalities in towns other than Canton. On May 14 the Massachusetts State Board of Health sent the following letter of recommendation to the local board of health in each of about fifty towns surrounding the centres of the epidemic:—

"Gentlemen:—In view of the fact that tonsillitis of a severe type is prevalent in your neighborhood, you are urged to recommend to citizens and physicians under your jurisdiction:—

"1. That for the next month all milk be boiled before using.

"2. That all milk receptacles be thoroughly sterilized before use by boiling.

"3. That any milk suspected to be the cause of epidemic disease be discontinued immediately until investigation proves it to be safe.

"4. That persons sick with tonsillitis be subject to the same rules of quarantine as diphtheria; especially should they be kept from any relation to the handling of milk.

"5. That physicians report immediately to your Board cases of tonsillitis occurring in their practice.

"6. That your Board report immediately to the State Board of Health any unusual number of cases of tonsillitis in your community."

New England Deaconess Hospital Training School.—The fifteenth annual commencement exercises of the nurses' training school of the New England Deaconess Hospital were held in Brookline, Mass., on Wednesday of last week, May 14. Diplomas were awarded to six pupil candidates, graduates of the school.

Massachusetts Dental Society.—The forty-ninth annual meeting of the Massachusetts Dental Society was held in Boston last week under the presidency of Dr. Michael W. Flynn, of Pittsfield. Among the papers presented was one by Dr. Sidney J. Raugh, of Cincinnati, Ohio, on "The Practical Aspect of the Oral Hygiene Movement," in which he said in part:—

"There are three main branches to this movement,—education, dental inspection and free clinics. Organization is necessary. This means dental organization; no matter how large or small the population may be there must be a complete understanding amongst the members of the profession if anything is to be accomplished. Practically every large centre has a dental society which is a working force for the solution of all dental problems. If this be not the case the logical step is to make it such. Organize from this central body a strong oral hygiene committee, with a chairman who is imbued with the spirit of his work; without this there can be no success. Next, the authorities of the school system and health department should be approached and permission obtained to hold the first dental inspection."

The society also reiterated its approval of the Dental Nurse Bill, now pending before the General Court. At the concluding session, the following officers were elected for the ensuing year:—

President, Dr. Aurelius F. Wheeler, of Worcester; First Vice-President, Dr. Henry H. Piper, of Somerville; Second Vice-President, Dr. Adolphus F. Wyman, of New Bedford; Secretary, Dr. Asher H. St. C. Chase, of Everett;

Treasurer, Dr. Joseph T. Paul, of Boston; Editor, Dr. C. Edson Abbott, of Franklin.

BOSTON MORTALITY STATISTICS.—Cases reported to the Board of Health for the week ending May 13, 1913: Diphtheria, 37; scarlatina, 30; measles, 182, of which 2 were non-residents; typhoid fever, 1; tuberculosis, 48. The death-rate of deaths reported for the week was 16.38.

NEW YORK.

CLINIC IN GYMNASTICS AND MASSAGE.—At a meeting of the New York Society of Graduates in Medical Gymnastics and Massage, held on May 4, at the Academy of Medicine, it was decided to open, in the autumn, a clinic for the administration of treatments of this character. The clinic will be under the supervision of the medical advisory board of the society, and only patients presenting a prescription signed by a duly licensed physician will be treated. This society, which was organized less than a year ago, aims to put the form of therapeutics which it represents under the supervision of the medical societies of the State, and it also purposes to include in its membership only persons of good moral character, who are proficient in massage procedures and medical gymnastics.

TRINITY CHURCH DWELLING HOUSE PROPERTY.—A very interesting portion of the 500-page year book and register of the parish of Trinity Church, just issued, is that written by Miss Emily Dinwiddie in regard to the dwelling-house property of the parish, which now includes 366 houses, with accommodations for 882 families, or between 3000 and 4000 persons. The rents vary between wide limits. Thus, one small building rents for $12 a month for the entire house, while another building, a two-family house, rents for $1200 a year. The lowest rents for apartments in three-family houses are $7 per month for three rooms, and the highest, $25 a month for five rooms. Trinity's houses, Miss Dinwiddie says in her report, have some advantages which most homes, even of the very wealthy in downtown New York lack. They have, as a rule, large yards, which not only serve as playgrounds for the children, but are commonly utilized by the tenants for flower gardens and, in a few instances, for vegetable gardens as well. They are, in over two-thirds of the cases, private dwellings for only one or two families, giving an opportunity for quiet family life, with room for children to grow up and space for their play, totally different from the surroundings in New York's towering apartment houses and swarming barrack tenements. As compared with East Side houses equally far downtown, the contrast is marked. They are low buildings, not making dark cañons of the streets, and the large open spaces in the rear give abundant light for the back rooms. There are no rear tenements on the back of the lots. There are few stairs for the mothers and babies to climb. The bedroom windows do not open on airshafts, where one crying child keeps twenty families awake, and the rooms are on the average much larger than in the dumb-bell and other common tenement and apartment types. Large families are not excluded, but are welcomed as tenants, the only restriction being that they shall not take quarters too small for the number of persons. The houses, through the corporation's control, are kept free from saloons, gambling houses, and immoral resorts, and also from rag and junk shops, with their dangers to health and proper sanitary conditions. The rents have remained practically the same for a quarter of a century, and, probably as a result of this, the dwellings even of the tenants in very limited circumstances are free from the lodger evil in its dangerous form. Moreover, the corporation, on its own initiative, has instituted inspections of the houses for the purpose of discovering need for repairs or other defects which call for remedy, or for improvements of any kind.

BEQUESTS.—By the will of the late Mrs. Catherine Reilly of New York, $220,000 is left to charitable societies and institutions. Among the latter—each receiving $5000—are St. Francis' Hospital, Misericordia Hospital and St. Agnes' Hospital at White Plains.

APPOINTMENT OF DR. WILLIAMS.—It is now reported from Albany that Governor Sulzer is to appoint Dr. Linsly R. Williams and not Dr. Biggs, State Commissioner of Health, the salary of which position has been raised by the bill reorganizing the State Health Department to $10,000. Dr. Williams is an associate in clinical medicine, Columbia University, and visiting physician to the City Hospital on Blackwell's Island.

NEW YORK MILK STATIONS.—In New York City at present 55 milk stations for babies are maintained under the control of the municipal department of health, and 23 under private direction.

Current Literature.

Medical Record.

May 3, 1913.

1. Castelli, E., and Pinel, T. *The Pathogenesis of the Gastric Crises of Tabes.*
2. Bristol, L. D. *Newer Ideas Concerning the Problem of Cancer Etiology.*
3. Andresen, A. F. *Results of Operation for Gastric Ulcer. A Plea for Radical Operation When Operation is Indicated.*
4. Pollitzor, S. *The Passing of Parasyphilis.*
5. Stoll, H. F. *The Significance and Management of Hypertension.*
6. Smith, J. *Post-mortem Ophthalmoscopy. Segmentary Intravascular Coagulation.*

5. Stoll calls attention to the well-known fact that a certain degree of hypertension is necessary for some patients. In about 90% of persons with persistent hypertension there is a pathological process in either kidneys or arteries. These patients need hypertension and it is a mistake to reduce it unless it causes symptoms. Some of the hypertension in these cases, however, is incidental—due to the activities of life and toxins of various kinds. This hypertension should be combatted, and it is here that efforts to relieve the patient are usually successful.

[L. D. C.]

New York Medical Journal.

May 3, 1913.

1. Pedersen, V. C. *Hematuria.*
2. Bartow, B. *Shoulder and Arm Paralysis of Poliomyelitis.*
3. Howard, T. *Anomalies in Cardiac Rhythm.*
4. Rosenbaum, G. *The Travels of a Nail.*
5. Herman, J. L. *Paraurethrae.*
6. Healy, W. P. *Fibromyoma Uteri.*
7. O'Connor, J. I. *Carcinoma of the Stomach.*
8. Strauss, H. *The Internal Treatment of Nephritic Diseases.*
9. Parker, G. *Chronic Nephritis.*
10. Collier, G. K. *Edema of the Glottis.*

The Journal of the American Medical Association.

May 10, 1913.

1. Meltzer, S. J. *Simple Devices for Effective Artificial Respiration in Emergencies.*
2. *Strauss, H. *The Carbohydrate Treatment in Diabetes.*
3. *Lind, S. C. *Atypical Pharyngeal Diphtheria.*
4. Haythorn, S. R. *Tuberculosis of the Large Arteries. With the Report of a Case of Tuberculous Aneurysm of the Right Common Iliac Artery.*
5. Dorrance, G. M. *Treatment of Felons with Reference to the Pathologic Anatomy and Location of Incisions.*
6. Keen, W. W. *The Later Histories of Four Surgical Cases.*
7. Fox, H. *A Case of Annular Papular Syphilis in a Negress.*
8. Scaller, W. F. *Spasmodic Torticollis. Notes on the Etiology in Two Cases.*
9. Grimm, R. M. *Pellagra: Some Facts in Its Epidemiology.*
10. Osborne, O. T. *Prescription Nonsense; a Last Plea for a Useful Pharmacopeia.*

2. Strauss has lately used the polysaccharid of levulose, inulin, in addition to a fairly strict vegetable diet, in grave cases of diabetes. He gives as the advantages of the vegetable diet the following reasons: It excludes meat but is rich in alkalies, and not only poor in albumen and calories, but also especially adapted to allay hunger by its large volume, and first by its content of fluid. The kind of vegetable must be selected, however, which is poor in carbohydrate, but rich in fat, and the diet must be varied often.

3. Lind calls attention to cases of atypical pharyngeal diphtheria in which there are practically no symptoms and only slight redness of the pharynx, but which gives a positive culture. These cases are hence more than carriers and should be guarded against.

[E. H. R.]

The Lancet.

April 12, 1913.

1. Lindsay, J. A. *An Address on Some General Considerations Regarding the Relation of the Medical Profession and the Public.*
2. Walker, C., and Whittingham, H. *The Effect of General Contraction of the Peripheral Blood Vessels upon Mouse Cancers.*
3. Barker, A. E. *The Treatment of Large Herniae.*
4. *Monro, T. K., and Teacher, J. H. *Three Cases of Polycythemia, with the Report on the Necropsy in One Case.*
5. *Freyer, P. J. *A Series of Two Hundred and Thirty-six Cases of Total Enucleation of the Prostate Performed During the Two Years, 1911-1912.*
6. Morison, R., and Drummond, H. *Congenital Stricture of the Lower End of the Esophagus. Case Treated by Gastrostomy, Followed by Dilatation of the Stricture Through the Esophagus.*
7. Bruce, L. C. *The Records of Four Unusual Recoveries in Cases of Mental Disease.*
8. Guthrie, L. *The Lady Sedley's Receipt Book, 1686, and Other Seventeenth Century Receipt Books.*

4. Monro and Teacher discuss the general subject of polycythemia, which they divide into two classes, relative and absolute. The later group they subdivide into two classes: first, symptomatic or secondary polycythemia, in which there is an erythrocytosis analogous to a leucocytosis. This is met in chronic heart and lung diseases and in high altitudes. Second, they describe a primary polycythemia which is analogous to leukemia. They present the details of three cases with autopsy report in one. This showed marked arteriosclerosis and old infarcts of the spleen. There was no evidence of tuberculosis.

5. Freyer analyzes his results in a series of 236 prostatectomies. The mortality was 4.66%; the average age was 69 years; the average weight of the prostate was 2¾ oz. [J. B. H.]

April 19, 1913.

1. *Trotter, W. *The Hunterian Lectures on the Principles and Technic of the Operative Treatment of Malignant Disease of the Mouth and Pharynx. Lecture I.*
2. Colyer, J. F. *The Morbid Anatomy of Periodontal Disease.*
3. *Pritchard, E. *Abdominal Pain in Infants.*
4. Tod, H. F. *Extradural Abscess at the Apex of the Petrous Bone. A Complication of Acute Inflammation of the Mastoid Process; Operation; Recovery.*
5. Barrington-Ward, L. E. *Pneumococcal Abscess of the Lung in Children.*
6. Wadham, F. J. *A Case of Periosteal Sarcoma of the Fibula with Unusually Rapid Though Typical Complications.*
7. Denyer, S. E. *A Note on the Use of Sugar in Heart Disease.*
8. Brown, W. *Freud's Theory of Dreams.*

1. In this long and general article, Trotter describes the forms of malignant disease as it affects the various parts of the mouth and larynx, with special reference to operative technic and lymphatic area involved in cancers of the various parts of this tract.

3. Pritchard has been able to find very little in the literature referring to abdominal pain in infants and its causes. Among these causes may be mentioned: (1), colic due to increased and painful peristalsis; (2), colic due to disturbances of the motor function of the stomach; (3), incoördination of the motor functions of the bladder; (4), referred pain from the thoracic organs; (5), renal colic; (6), spinal caries and osteomyelitis; and (7), peritonitis, appendicitis, etc. These various conditions and their symptoms and detections he goes on to discuss. [J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 12, 1913.

1 *BARR, J. *An Address on Rheumatoid Arthritis.*
2. *LUFF, A. P. *The Harveian Lecture on the Various Forms of Fibrositis and Their Treatment.*
3. *FRASER, J. *A Study of the Types of Organism in a Series of Bone and Joint Tuberculosis of Children.*
4. FOTHERGILL, W. E. *Clinical Demonstration of an Operation for Prolapsus Uteri Complicated by Hypertrophy of the Cervix.*
5. ROBINSON, C. A., AND THOMAS, G. W. *A "Suppurating" Branchial Cyst.*
6 DE VERTENEL, E. *Two Cases of Penetrating Wound of the Heart, Treated by Operation.*
7. BEDFORD, P. W. *The Nascent Iodine Treatment of Lupus Nasi.*

1. Barr describes rheumatoid arthritis as a low, chronic polyarticular inflammation with frequent acute exacerbations. He believes that the cause is a mild chronic acidosis. He briefly discusses symptoms and treatment. (As it is not altogether clear which form of arthritis the writer refers to, the article loses much of its value.—J. B. H.)

2. Luff, under the heading of fibrositis, discusses the treatment of muscular rheumatism, which is "always a fibrositis," Dupuytren's contraction, fibrositis of fascia, bursae, joints, synovial tissues, et al. In treatment he believes that fibrolysin has a very limited field; he discusses treatment by external applications, heat, electricity, massage, diet and surgery.

3. Fraser finds that a "considerable proportion" of bone and joint tubercle of children in Edinburgh is caused by the bovine bacillus, introduced into the body by infected milk. Of the cases due to the human type, a large proportion of these is due to direct infection from a consumptive parent. [J. B. H.]

APRIL 19, 1913.

1. *BRAMWELL, B. *An Address on Malingering, Valetudinarianism, and Their Prevention.*
2. *BOND, C. J. *Remarks on Malingering.*
3. COLIE, J. *A Plea for Medical Referees versus Inspectors.*
4. FUNK, C. *Studies on Beriberi.*
5. *GALLOWAY, J. *Cutaneous Indications of Alimentary Toxemia.*
6 *HERTZ, A. F. *Chronic Intestinal Stasis.*
7. LEDINGHAM, J. C. G. *The Bacteriological Evidence of Intestinal Intoxication.*

1. Bramwell discusses malingering in detail with many illustrative cases. The article, in view of the working of the National Insurance Act in England and the Workingman's Compensation Act in this State is a timely and valuable one.

2. This covers the same ground as the above, though from a slightly different point of view.

5. Galloway divides the cutaneous manifestations of alimentary toxemia into four groups, which he describes in some detail. These groups are: (1), lesions arising from disturbances of blood vessels, such as urticaria and erythema; (2), conditions due to deep-seated inflammatory processes resulting in dermatitis and ulcerations; (3), purpura in its various forms; (4) pigmentations of varous kinds.

6. Hertz does not believe that ptosis of the intestines leads to stasis except in rare instances; perfect health is frequently associated with a pelvic caecum and transverse colon. In most cases of constipation a single part of the bowel, such as the rectum, colon, etc., alone is involved, and to this part treatment should be directed. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

APRIL, 1913.

1. LANE, C. *Trichostrongylus Colubriformis (Giles, 1892). A Human Parasite.*
2. ROUX, F. *Arsenic in the Treatment of Kala-Azar.*
3. MATSON, H. S., AND SINGH, G. *Sanatorium Treatment for Phthisis in a Civil Hospital.*
4. MURRISON, C. C. *The Sanitary Requirements in the Construction of a Slaughter-House in India.*
5. SMITH, C. H. *Acute Yellow Atrophy of the Liver.*
6. SUMNER, F. W. *Control of the Eye in Cataract Operations.*
7. SMITH, F. F. S. *Extraction of the Lens in Its Capsule.*
8. KEELAN, R. S. *A Case of Bagdad Sores, Showing an Apparently Long Incubation Period.*
9. FRASER, F. C. *A Case of Ovarian Fetation.*
10. TAYLOR, E. C. *An Unusual Case of Enteric Fever.*
11. BATAVYAL, K. L. *A Case of Hat-Pin in the Duodenum.*
12. KENNEDY, R. S. *A Rough and Ready Field-Steriliser.*

THE QUARTERLY JOURNAL OF MEDICINE.

VOL. 6. NO. 23. APRIL, 1913.

1 *DUNN, J. S. *The Use of the Oxydase Reaction in the Differentiation of Acute Leukemias.*
2. *SCHEYVER, S. B., AND SINGER, C. *Investigations on the Gastric Juice in Malignant and Non-malignant Diseases of the Stomach and Duodenum. Parts II, III and IV.*
3. *CORBETT, O. *The Quantitative Estimation of Amylolytic Ferments in the Urine as a Measure of Certain Pathological Conditions.*
4. *WEBER, F. P. *"Beber's Sign" and Certain Cutaneous Phenomena Sometimes Associated with Heart Disease.*
5. GLYNN, E. *Notes on Four Cases of Fulminating Pneumonia from a Public Institution.*
6. BROWNING, C. H. *Critical Review. Hemolysis in Its Clinical Aspects.*

1. Until a few years ago practically all cases of acute leukemia were classified as belonging to the lymphatic variety. Recent work, on the contrary, tends to show that the large non-granular mononuclear cells found in this type originate in the bone marrow, and the name acute myeloid leukemia is being employed for these cases. One of the most important means of differentiation consists in the demonstration of ferments in the cells, which is held to prove the bone marrow origin, for cells formed in lymph nodes contain no ferments. Dunn has investigated the indophenol-oxydase reaction in three cases of acute leukemia, and comes to the following conclusions: (1), the occurrence of a positive reaction

in large non-granular cells in acute leukemia is certain proof of their myeloid nature; (2), the absence of the reaction does not exclude a myeloid origin, for the reaction was found negative in the more embryonic forms of marrow cells, such as small myeloblasts and the earlier large myeloblasts.

2. This elaborate study of the gastric juice in various diseased conditions is not suitable to a short review, owing to the wealth of details. The writers show that if there is a large amount of nitrogenous digestion products there may be an apparent absence of "free" hydrochloric acid, although the "secreted chloride" is normal. Hence the classificaton of gastric juices on the basis of the presence or absence of free hydrochloric acid is fallacious. They recommend a classification based on the double consideration of the "secreted chloride" and the "peptic index." They introduce a new term in the shape of the "nitrogen factor," which consists in the quotient of the difference between phenolphthalein and dimethyl acidity divided by the nitrogen equivalent and multiplied by ten. A high nitrogen factor they found to be almost pathognomonic of delayed emptying of the stomach. The characteristics of the gastric juice in ulcer and cancer were found to depend more upon the site than upon the nature of the lesion. This uncomplicated ulcer of the duodenum and pylorus gave almost uniformly high values for the secreted chloride and peptic index, while in ulcer of the lesser curvature and body of the stomach the results were various, but an increased peptic index was never encountered. Similarly, in cancer of the stomach, if the disease was limited to the pylorus and obstruction was absent, the values for chloride were high or normal, never decreased, while cancer of the body of the organ gave strikingly low values for both secreted chloride and peptic power. The occurrence of a definite hyperchlorhydria with a greatly raised peptic index was found practically diagnostic of pyloric and duodenal ulcer, some cases of chronic appendicitis furnishing the only exception to this rule. It should be noted that in several cases in which the writers were led to assume a cancer of the stomach no gross lesion was found at operation. Thus, even with the most refined modern methods, the chemical analysis of the gastric juice may lead one astray. The methods advocated by the writers are more suited to research than for clinical purposes, being too elaborate for the resources of most hospitals, to say nothing of the practitioner.

3. Corbett has made a careful study of the amylolytic ferment in the urine in health and disease. He used Wohlgemuth's method. The chief value of the method seems to be in the diagnosis of lesions of the pancreas, a marked increase in the ferment value being always found, whether the disease of the pancreas was acute or chronic. Acute infections of all sorts were also found to be accompanied at times by high ferment values. The presence of increased ferment in many cases of puerperal eclampsia suggests the possibility of a lesion of the pancreas in this disease. The estimation of diastase as a measure of renal efficiency is discussed. There is no doubt of its value to compare the conditions of the two kidneys after catheterization of the ureters. In the mixed twenty-four hour specimen, however, a normal value for diastase might be found with considerable impairment of renal function, if there was much albumin in the urine, and in such cases the simultaneous estimations of the diastase in blood serum and urine become necessary. In chronic interstitial nephritis, on the other hand, the value for diastase proved a fair measure of renal efficiency.

4. Weber calls attention to the value of Osler's sign in the diagnosis of chronic and subacute malignant endocarditis. The sign consists in small pink swellings about the size of a pea which appear usually on the extremities. They are tender and disappear after a few days. They are the result of minute emboli in the skin and are practically pathognomonic of malignant endocarditis. [W. T.]

Wiener Klinische Wochenschrift.

No. 15. April 10, 1913.

1. *Dr Finger, E. *Mercury and Salvarsan; Remarks on Syphilis Therapy and the Most Serviceable Technic.*
2. Wiczkowski, J. *Contribution on Leukemia.*
3. Deutsch, F., and Hoffman, O. *Investigations on the Sympathetic Nervous System in Pulmonary Tuberculosis.*
4. Sohn, D. *The Effect of Benzol on Metabolism and Its Use in the Treatment of Leukemia.*
5. Bylotf, K. *Aneurysm of the Abdominal Aorta.*
6. Skudbo, S. *Effect of Mercury on Carcinoma in Mice.*

1. The author, inasmuch as salvarsan shows no advantage over mercury in secondary syphilis, concludes that the salvarsan mercury treatment is best adapted to abortive treatment of the primary stage and Wassermann negative sclerosis, also in the tertiary stage in which rapid action is desirable. On the contrary in Wassermann positive sclerosis and early secondary stages the salvarsan treatment would better be omitted. The omission of salvarsan does not preclude an encephilitis hemorrhagic, still the evil effects on patients treated with salvarsan, as, for example, the meta- and para-luetics, are lacking experimental proof. [F. S. K.]

Deutsche Zeitschrift für Chirurgie.

March, 1913. Band 121. Heft 5-6.

1. *Wetterstrand, G. A. *The Symptoms and Treatment of Perforated Gastric and Duodenal Ulcer.*
2. *Pawloff, A. *Accessory Ureters.*
3. *Molineus. *The Possibility of Bile-Duct Replacement by Implantation of the Vermiform Appendix.*
4. Rost, F. *Anatomic Investigations of Some of the Cutaneous Nerves More Important for Local Anesthesia with Reference to Their Points of Transit Through the Fascia.*
5. Knape. *Pancreatic Hemorrhage.*
6. Kuhn, F. *The Air Compressor in the Hospital. IV. Artificial Circulation by High-Pressure Massage.*
7. *Rubaschow, S. *Bradycardia in Liver Injuries.*
8. Horwitz, A. *A New Method for the Operative Treatment of Ischemic Contracture.*
9. Rosenthal, R. *Ascaridiasis of the Bile-Passages, with Reference to a Personally Observed Case.*
10. Hartlung, H. *Hypernephroma of the Kidney.*
11. Hollensen, M. *A Case of Hallux Varus.*

1. Wetterstrand finds that in Finland the majority of gastric perforations occur in men, in contradistinction to what appears to be the case in Middle Europe. The perforation takes place chiefly in the aboral part of the stomach. In 80% of the cases, previous ulcer symptoms can be recognized in the history. The character of the liver dullness is of great importance, since the dullness disappears or diminishes shortly after perforation. Each case should be treated according to individual circumstances. The total mortality is more (45%) than in the diffuse appendiceal peritonitides (39%).

2. Pawloff reports five cases of accessory ureter, and finds that in all such cases there are present two overlying renal pelves, separated by a partition of renal tissue. The hilus of both renal pelves lies in the normal place. The lower ureteral opening in the bladder corresponds to the upper renal pelvis. Accessory ureters are the cause of various renal affections. They need no treatment as such, but the consequent diseases may be cured by resection of the ureter or nephrectomy. Nothing can be said regarding the relative frequency of unilateral or bilateral ureteral duplicity.

3. Molineus reports a case in which he successfully replaced the common bile duct by the appendix. This suggests another surgical use of the appendix besides those for appendicostomy and for plastic reconstruction of the urethra in hypospadias.

7. Rubaschow selects from the literature 35 cases in which bradycardia is mentioned as a symptom after severe abdominal injuries of other organs than the liver and concludes that bradycardia cannot be considered an important characteristic symptom of liver injury, as averred by Finsterer. He also believes that Finsterer's explanation of the bradycardia is the effect of bile action. [R. M. G.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BAND 79. HEFT 3 AND 4.

1. *TECHAU, H. *Diagnostic Value of Pepsin Content of Urine.*
2. KAUFMANN-WOLFF, M. *Further Communication on the Fate of Syphilitics and Their Families.*
3. GRESSOT, E. *Hemophilia.*
4. *HANSSEN, O. *Action of Large Doses of Sodium Bicarbonate in Diabetes Mellitus.*
5. *GJESTLAND, G. *A Case of Paralysis Agitans with Enlargement of Parathyroid Glands.*
6. CURSCHMANN, H. *Intermittent Basedow Symptoms (in Tabes and Bronchial Asthma).*
7. GEORGOPULOS, M. *On the Poisonous Effect of Parathyroid Glands in Nephritis.*
8. BARSONY, T., AND EGAN, E. *Diagnostic Value of Echinococcus Complement Binding.*
9. *GOERDELER, G. *The Determining Points of Old Tuberculosis of the Lungs and Neighboring Glands.*

1. The author found pepsin estimation in the urine of no use as diagnostic of stomach conditions, either in a positive or negative way.

4. In diabetic coma, by the use of 4.0% intravenous bicarbonate of soda solution up to only 2.0 grams per kilo weight Hanssen brought on convulsions in three cases, post-mortem examination showing hyperemia and edema of the brain with cortical and more rarely subcortical hemorrhages.

5. The author considers this case unique. A patient with long-standing paralysis agitans (10 years) shows at autopsy markedly enlarged parathyroid glands. Microscopically these glands differ one from another, some evidently contain an excess of epithelial structure. In others, however, the epithelium seems overgrown by connective tissue; two contain blood and one pigment. Therefore it is uncertain whether we are here dealing with hyper- or hypoparathyroid function.

9. Goerdeler concludes, after an exhaustive study, that there are many signs formerly considered pathognomonic of healed tuberculosis which may, in fact, indicate other disease. Diffuse calcification and ossification in lungs are not necessarily indicative of old tuberculosis. So that this author would tend to discredit the amount of tuberculosis generally said to be present in the community, amounting, according to Nagell, to over 90% of the population. [J. B.A.]

IL POLICLINICO.

MARCH, 1913.

MEDICAL SECTION.

1. ANTONELLI, G. *Concerning Hemolytic Icterus.*
2. *FARMACHIDIS, C. *Experimental Studies on the Presence of Anthropotoxin in Expired Air.*
3. DE SANDRO, D. *Bacillus Oxalatigenes and the Possibility of a Bacterial Origin of Oxaluria.*

2. Farmachidis reports the results of elaborate experiments on rats with the expired air of patients suffering from respiratory and other diseases. Water of condensation was injected intravenously. He believes that the isotonic properties of the liquid injected do not explain the phenomena observed in the animals—tremors, convulsions, etc.—although considerable disturbance of circulation is undoubtedly produced by the sudden presence of any liquid. The results obtained show that expired air possesses a certain amount of toxicity for rats, whether the individual from whom it comes is sick or well, febrile or afebrile, or whether his respiratory system is normal or pathologic. [L. D. C.]

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts. (To be continued.)*
2. *LEOTTA, N. *Obliterations of the Mesenteric Vessels. (Conclusion.)*
3. MAGNI, E. *Two Cases of Multiple Peripheral Neurofibrosarcomatosis.*

2. From his experimental researches, and from a clinical study of 45 cases, collected from the literature, of hemorrhagic infarct of the intestine, Leotta concludes that resection of the loop, followed by entero-anastomosis is the operative procedure of choice in all cases in suitable condition. There is a bibliography of 202 titles. [R. M. G.]

APRIL, 1913.

MEDICAL SECTION.

1. SCORDO, F., AND RIZZUTI, G. *Clinical Observations and Bacteriologic Studies in an Epidemic of Infectious Jaundice at Tripoli.*
2. ANTONELLI, G. *Concerning Hemolytic Icterus.*
3. *TADINI, A. *Further Observations on Active Immunization Against the Pyrogenic Substance Contained in Typhoid Anaphylatoxin.*
4. FERNANDO, M. *A Contribution to the Study of the Mechanism of the Action of Aggresinic Exudates and of Anti-aggressinic Sera.*

3. Tadini reports results of an experimental study of the pyrogenic substance contained in typhoid vaccine and of active immunization against it. He found that animals vaccinated with killed typhoid bacilli are immune to the pyrogenic poison contained in these bacilli and also to that contained in typhoid anaphylatoxin. He therefore concludes that the two poisons are identical. [L. D. C.]

SURGICAL SECTION.

1. PEREZ, G. *So-Called Osseous Cysts. (Continuation.)*
2. AUSTONI, A. *Artificial Compression of the Hypophysis.*
3. *BARNABO, V. *Further Experimental Researches on the Internal Testicular Secretion.*

3. In a further experimental study of the internal testicular secretion of rabbits, Barnabo concludes that testicular transplants, whether entire or partial, do not take in the higher mammals, either subcutaneously or intramuscularly. That, nevertheless, during necrosis there is absorption of some internal secretion from the transplant, which causes regression of compensatory hypophysory hypertrophy and hyperfunction. The elaboration of an internal secretion is again proved by the injection of fragments of entire testicles, and especially by parabiosis between castrated and intact animals. The testicle upon which the operation of differential resection has been done, cannot produce such substances as render hypophysory hyperfunction useless, and cause regression of hypertrophy. It is doubtful, however, if the interstitial cells alone are concerned in the elaboration of the internal testicular secretion. [R. M. G.]

Obituary.

FRANCIS PARKER KINNICUTT, M.D.

In the death of Francis Parker Kinnicutt, May 2, 1913, the profession of medicine, a large circle of patients, and an even larger circle of friends, have sustained a grievous loss. Born in Worcester in 1846, of the best New England stock, and numbering among his forbears members of the Waldo, Salisbury and Lincoln families, he took his A.B. at Harvard in 1868. In college he was an original member of a club table of twelve, formed in the middle of the Freshman year—1865. He is the first of the twelve to die, the band remaining unbroken for forty-four years. After leaving Harvard he studied medicine at the College of Physicians and Surgeons, now the Medical Department of Columbia College, graduated in 1871, and then served a term as house physician at the Bellevue Hospital, after which he pursued his studies in Vienna, Heidelberg and London, and then entered practice in New York City. His qualities were such as to command success anywhere, and he naturally became assistant to and later partner of Dr. W. H. Draper, his brother-in-law, then and for many years following one of the leading physicians in the city. We can easily imagine how useful they were to one another. Of late, Dr. W. K. Draper, son of Dr. W. H., and Dr. Kinnicutt's nephew, has been his partner.

The list of his hospital, teaching and allied positions fills a page in the "Harvard Class of 1868" book, published in 1908. We can only mention the chief of them here. He was attending physician at St. Luke's Hospital, 1879-1896; to the Presbyterian Hospital, 1892, and in active service at the time of his death; Professor of Clinical Medicine in Columbia from 1893; an original member of the Association of American Physicians and its President in 1906 to 1907, a constant and absorbed attendant at the meetings, a frequent contributor of carefully prepared and noteworthy papers, and a participator in helpful discussion. He also did his share of public work. His mind was not eminently original, but his industry and enthusiasm for all pertaining to medicine, and his thoroughness, were unfailing and recognized by all. It was remarkable that full of work as he was, and inclined by nature to be unmethodical, he kept abreast of progress, quick to see the bearings of new principles and methods. His up-to-dateness was a source of wonder to all, and of despair to some of his friends. In dress he was very soigné, without being otherwise conspicuous. His good manners, in no way studied, were the outgrowth of his nature, always considerate of others, even of their failings. He had a sweetness of character almost feminine in kind and degree. His gentleness, tact, and sympathy kept him unspotted of the world. These qualities we sometimes see in men who are thereby unfitted to cope with the world and its market places. Not so with Kinnicutt, who combined harmoniously therewith an equal degree of manly strength and the power to control emotion and impulse by reason. The writer, whose intimate knowledge of Dr. Kinicutt extends over a half century, can not, at present, recall another member of our profession, of his time, so conspicuously endowed in those respects. These personal qualities, his enthusiastic love of his work, his thoroughness, made him the trusted physician, friend, the ornament of the profession that he was. To the poor or the outcast in the hospital he was the same courteous gentleman that he was to the fortunate in life. To nurses and students he was an example of what every physician should aim to be. So justly and so much was he beloved that the term "beloved physician" can be truthfully applied to him. Since a severe operation several years ago, he was, at times, conscious that he had a heart, but suffered no serious inconvenience from it. The past winter he took a holiday at Aiken and thought nothing of riding fifteen or twenty miles in the saddle. He was a good horseman and rode to hounds in England and in this country when he got a chance. The end came with absolute suddenness, just after he had read a very carefully prepared paper relating certain cases of oral sepsis which had been very baffling, but were finally elucidated by his persistent study. The meeting was at a friend's house, and he died sitting on the sofa while listening to commendations of his paper. Could an end be more desirable?

In his married and domestic life he was supremely happy. In 1874 he was married to Eleanora Kissel of New York City, and survived her only a year and a half. The active part which she took in the promotion of charities, both public and private, in city and state alike, and in the proper provision for the ash and garbage barrels which, at one time, lined the sidewalks in New York, are still fresh in mind. He leaves two sons, Francis H. of the New York Bar, and Hermann, banker.

Miscellany.

CAUSES OF DEATH IN THE UNITED STATES.

In a bulletin of the Census Bureau of the Department of Commerce, prepared by Dr. Cressy L. Wilbur, are presented the following considerations relative to causes of death in 1911 in the United States registration area:—

"There were 12,451 deaths from typhoid fever in the registration area of the United States during the year 1911, a slight decrease from the number for the preceding year. The death-rate was 21 per 100,000 population for 1911, 23.5 for

1910 and 21.1 for 1909. The rate for 1911 is the lowest from typhoid fever since the institution of the annual reports and probably the lowest in record. This fact and the progressive reduction in the mortality from this disease, from 32 per 100,000 population for the period 1901 to 1905 to 25.6 for the period 1906 to 1910, indicate that the public health officials of the country and the people who support their efforts are awakening to the necessity of wiping out this filth disease. The mortality from this cause in the United States is still far in excess of that of progressive European countries. If it could be reduced by three-fourths, so that it would be only 5 per 100,000 as in England and Wales, the Netherlands, and Prussia, for 1910, it would represent a saving of nearly 10,000 lives at the period of their greatest usefulness, as a rule, in the registration area alone.

The cities of 100,000 population and over having the highest death-rates from typhoid fever in 1911 were: Atlanta, 66.1; Memphis, 65.4; Nashville, 53.9; Birmingham, 45.5; and Spokane, 35.6—all but the last, cities of the South; while the lowest rates, valuable as evidence that the typhoid mortality of American cities need not exceed that of the well-regulated European cities, are recorded for Cambridge, 2.8, and Bridgeport, 3.8. Chicago and New York had the same rates for the year, 10.9; and several cities, besides Cambridge and Bridgeport, had rates under 10 per 100,000, namely, Worcester, 6; Paterson, 7; Jersey City, 7.2; Lowell, 7.3; and Boston, 8.7.

"The total number of deaths from all forms of tuberculosis in the registration area during 1911 was 94,205, the death-rate being 158.9 per 100,000—slightly lower than the rates for the preceding years, 160.3 and 160.8 for 1910 and 1909, respectively. The rates for the past three years are considerably lower than the annual averages for the quinquennial periods 1901 to 1905, 192.6; and 1906 to 1910, 168.7. There would appear to be a marked reduction in the death-rate from this disease, although the rate for the past three years has remained practically unchanged.

"The highest death-rates from all forms of tuberculosis shown for the States in the registration area were those of Kentucky, 229.3; Colorado, 218; California, 206.8; Maryland, 203.3; and the lowest rates were those of Utah, 46.8; Michigan, 96; Wisconsin, 103.8; Washington, 106.7; and Montana, 107.1. The high death-rate for the group of North Carolina municipalities, 256.8 per 100,000, was due to urban conditions and the large colored population.

"The cities of 100,000 population and over in 1910 having the highest death-rate from tuberculosis of all forms were Denver, 292.7; Los Angeles, 277.5; Albany, 269.4; Cincinnati, 265.3; and New Orleans, 260.5; while those with the lowest rates were Milwaukee, 106.5; Portland, Oreg., 106.8; Spokane, 109.4; Grand Rapids, 110.3.

"Organic diseases of the heart caused more deaths, 83,525, than any other disease or group of diseases shown in the Abridged International List, although the number of deaths from tuberculosis of all forms, 94,205, was considerably greater. The death-rate for 1911, 140.9, was slightly lower than that for the preceding year, 141.5, but the rate for each of these years was much higher than the rate for 1909, 129.7; and the rates for the quinquennial periods 1901 to 1905, 124.2; and 1906 to 1910, 133.2.

"The mortality from heart disease is largely that of persons of middle and advanced age; hence the age distribution of population is an important factor in the rate. The States with the highest rates are Vermont, 211.8; New Hampshire, 197; Massachusetts, 193.5; Maine, 179.8; and California, 178.7; while the lowest rates are shown for Montana, 80.8; Utah and Washington each, 82.8; Kentucky, 86.5; and Colorado, 89.4. Among the large cities the highest rates were shown for Albany, 237.7; Worcester, 228.8; San Francisco, 227.9; Nashville, 220.8; and Washington, 214.5. The lowest rates are shown for Scranton, 93.9; Minneapolis, 95.1; Milwaukee, 95.6; Seattle, 96.9; and Spokane, 99.6.

"The total number of deaths from pneumonia of all forms in the registration area in 1911 was 79,233, the death-rate per 100,000 population being 133.7. The death-rate of the white population, 128.4, was about one-half that of the colored, 252.2.

Among the death-rates from pneumonia (all forms) in the registration States in 1911, the highest were those of New York, 177.8; Massachusetts, 153.8; Connecticut, 153.5; Rhode Island, 152.1; and New Jersey, 151.4; and the lowest those of Washington, 64.8; Wisconsin, 85.7; Montana, 90.2; Michigan, 90.4; and Minnesota, 96.1. The large cities showing the highest death-rates from this cause were Atlanta, 227.8; Nashville, 222.6; New Haven, 212.1; York, 209.6; and Pittsburgh, 207.2.

Correspondence.

LETTER FROM FRANCE.

CONCERNING CERTAIN MENTAL CONDITIONS.

(From Our Special Correspondent.)

PARIS, April 29, 1913.

I was advised by a friend, the other day, to pay a visit to the *Salon des Indépendents*, and as I had never yet seen one of these exhibitions, I acted on his suggestion and went. "Don't waste any time on the first rooms," he said, "but go right through to the end where the cubists are,—it is an experience"!

Four or five rooms are there set aside for the works of this recent development in art, and I imagine that some such expression as this: "Mais enfin, ce qui se moque-t-on ici!" must involuntarily rise to the lips of each average visitor when he beholds this manifestation for the first time. It is difficult in mere

words to convey any adequate idea of this extraordinary attempt at evolving the new and the startling; certainly this would be quite impossible, without sitting down and taking detailed notes, and this I had not time to do. But these remarkable squares of canvas with paint on them did not move me particularly. Many years ago I had a rather extensive practice among the gentlemen of the brush, and especially among those that frequent the Latin Quarter, and I then learned that the painter must be classified in a genus quite by himself, to which the ordinary laws that govern the *homo sapiens* do not apply; and that it is trouble wasted to be unduly agitated by his succeeding outbursts and vagaries. There are now held each year in Paris four *Salons*, at which I suppose there are exhibited between ten and twelve thousand paintings; and to this number must of course be added the large quantities that are rejected, in any endeavor to form an idea of the annual art-output of this great centre. It follows, naturally, that in this immense mass the average painter is quite lost, and that unless he can hit on some fresh and striking way of attracting attention to his work, his chances of never making a sale are exceedingly great. *He*, it goes without saying, always represents these new endeavors as an earnest struggling after truth; and whether he be impressionist, post-impressionist, futurist, cubist or orphist, appeals for public sympathy toward one who has discarded the trammels of the venerable systems that have preceded his but that have been tried in the balance and found wanting. The real motive, however, is, I imagine, simply one of dollars and cents, for the reasons given above.

Now as regards the cubist manifestations in general, I am distinctly philosophical and optimistic. There is no use whatever in telling *me* that that is to be the art of the future. When the comely contours of the female form,—cheeks, chin, neck, shoulders, bosom, hips, thighs, etc., begin to appear to me in the shape of cubes, pyramids or parallelopipedons, I shall either infer that I have suddenly developed a record degree of astigmatism, or, if that proves untrue, I shall ask some kind friend to accompany me to a specialist to have my mental condition thoroughly investigated. Nor do I ever expect to see the portrait of a gentleman, or the view over a Spanish village, in the guise of a box of children's books of different shapes thrown in confusion over the floor. And, finally, I doubt very much whether the mainstay of the picture collections of our descendants will consist in pathological specimens, such as cases of rachitis, of osteomalacia, or of an apparently new disorder which we owe to those wielders of the brush, and in which the limbs are drawn out to an unconscionable length like those of the orang-outang, but curved.

Messieurs les cubistes, the search after "ter-rewth" is no doubt very fascinating and difficult; but she is certainly not concealed in the direction in which you are heading. A witty Frenchman went and had a look at these geometric ravings in color, and was particularly attracted by one, to which he refers in somewhat the following terms: "This represents a moonlight scene in Venice, unless you prefer to consider it a portrait of Mlle Gaby Deslys,—it is just as the spectator chooses."

Finally, some humble practical-joker among the exhibitors themselves has summed the entire question up in one picture. This remarkable effort represents, as nearly as I could make out, a culture-growth of spirochaetae in all positions and groupings, colored in gray, white and black,—a picture two and a half by one and a half metres in size,—underneath which the author has scrawled: "Ce que l'on voudra!" Bravo, unknown hero; that is just about the size of it.

But it was not so much the cubists that I wished to write about today, as a certain curious new literary departure that has been their outcome,—something that is represented to be an attempt to transfer the cubist ideas from art to writing. The leading spirit in this movement is, strange to say, an American lady, a Miss Gertrude Stein; and just as Allah had his Mahomet and Johnson his Boswell, so has the head of this new sect her interpreter in a certain Mabel Dodge (social status unknown to me). No one on earth, outside of this mutual admiration society of two, could understand what G. S. writes; and as G. S.'s last name has a German aspect, she will perhaps pardon me if in this connection I quote from a semi-German classic:

"Gott knows I-meant somedings vhen foorst dis buch
I writ,
Boot Gott only wise vot das buch means now—for I
hafe fergotten it."

These lines, which referred to the philosophy of Hegel and Richter, are applicable in a certain degree to the prose productions of G. S., but only in part; for it is beyond question that even in the beginning not even she quite knew what she meant. But let me give some instances.

One of her writings now before me bears on the cover: "Portrait of Mabel Dodge at the Villa Curonia," and inside there are eleven printed pages. Now I will defy anyone to read those pages, without having seen the cover, and to derive the faintest atom of a conception as to what they are about. Thus the second paragraph runs as follows: "Bargaining is something and there is not that success. The intention is what if application has that accident results are appearing. They did not darken. That was not an adulteration." These lines can hardly be said to consist of words cast on a sheet at the hazard of a pepper-pot; but they can quite fairly be claimed to represent short sentences clipped at random out of a book and scattered over paper in the aforesaid manner. Farther on in the portrait of M. D. the author again remarks with the utmost perspicacity: "There has been William. All the time is likely. There is the condition. There has been admitting. There is not the print. There is that smiling. There is the season." Then comes the following pearl. "There is that where there is not that which is where there is what there is which is beguiling. There is a paste." You see,—no explanations are required for *that* prose; it is pellucid, diaphanous. Even a child could understand as he runs.

But this is only one style of the author; she has others. A second variety we will call that of the pious Buddhist, one of whose chief occupations in life is to mumble over to himself as many times as possible in the waking hours the sacred formula of his creed, *"om mani padme hum."* Here is a specimen from G. S.'s works of what I mean: "One whom some were certainly following was one who was completely charming. One whom some were certainly following was one who was charming. One whom some were following was one who was completely charming. One whom some were following was one who was certainly completely charming." Here you see a luminous thought successively repeated almost word for word four times in one short paragraph, the only change being the shifting about of the two adverbs "completely" and "certainly." And she continues in this vein for three quarto pages! Her predilection for the word "certain," or "certainly," is something quite peculiar. On the first page of this article it occurs twenty-four times; in one paragraph of seven lines, eight times; and in a certain two lines, four times. Apparently G. S. thinks that this unending repetition leads to effect; so no doubt does the devout Buddhist. But the general consensus of opinion is that the eternal drivelling of a meaningless phrase, such as "the jewel in the lotus, amen," is the act of an imbecile.

Still another means for effect used by our author is the stringing together of a number of words all ending in *ing*: "certainly he was expressing something being struggling. Anyone could be certain that

he was expressing something being struggling." Here you have both the *certains* and the *ings*. Again: "Some certainly were wanting to be needing to be doing what he was doing, that is clearly expressing something." Finally: ". . . wanting to be needing expressing anything being struggling!"

But setting aside these little tricks of style, please do not fail to note once again her quite special lucidity of thought. Occasionally, when even herself wearied by this endless droning repetition, she resorts to alliteration, such as the following: "There is the likeliness lying in liking likely likeliness." What it all means appears to be immaterial, so long as the desired effect is obtained.

I showed some of this futurist prose to a friend of mine who is the possessor of a quick and nasty tongue, and he reacted even more promptly than is his custom. He exclaimed at once: "But I have seen this before." This hurt my feelings, as I had fancied I was serving him up fresh material. He continued: "A long time ago someone translated 'The Jumping Frog' into French, and Mark Twain was so overcome with delight at the result that he retranslated it verbatim back again into English. This is just the way the final text read."

I have been told that this new literature is an effort to reproduce thought, to exteriorize the subconscious self; well, if this is a sample of the state of affairs that prevails in our subconscious selves, it becomes a serious question whether they had not better be left quietly where they are, and not undergo exteriorization.

The editor of the paper from which I have made many of these extracts dryly heads one article by a few lines of introduction, in which he says that it concerns the only woman in the world who has put the spirit of post-impressionism into prose, and is written by the only woman in America who fully understands this prose. Wherein I beg to differ; this gibberish can convey no definite impression to anyone on earth, for the very simple reason that it contains not a semblance of a definite idea. Miss Stein's apologist writes: "Many roads are being broken today, and along these roads consciousness is pursuing truth to eternity." Now that looks like a mighty fine phrase; it unquestionably has a certain ring to it. Yet I should be glad if some kind reader would give me an idea of what it may mean? I fancy that this particular road is at most a very insignificant trail through a barren wilderness; and that instead of guiding the inquiring wayfarer to truth and eternity, it will meet with the fate of the path in the storybook, that dwindled to a squirrel-track and finally ran up a tree!

M. D. continues: "She is impelling language to induce new states of consciousness." Yes, I fancy that at least is true. "By her method she is finding the hidden and inner nature of nature." H'm; doubtful. "She always works at night in the silence and brings all her will-power to bear upon the banishing of preconceived images." In this it must be admitted that her success is unparalleled. "Concentrating upon the impression she has received and which she wishes to transmit, she suspends her selective faculty, waiting for the word or group of words that will perfectly interpret her meaning to rise from her subconsciousness to the surface of the mind." There you have the *modus operandi*, in case anyone is moved to become a follower of this new school. "In G. S.'s writing, every word . . . is so exquisitely rhythmical and enhanced that when read aloud and received as pure sound, it is like a kind of sensuous music." Now that is the climax to which a person can be brought who, as an old gentleman I once knew used to remark, "allows the pinfeathers of his imagination to fly away with the tail-feathers of his judgment."

If it had not been for the fact that this cubist literature has been taken quite *au sérieux* in certain quarters, and by no one more so than by the leader of the movement herself, I should never have thought of referring to it, looking on the whole affair merely as an interesting case for Lombroso, Max Nordau or Janet; but as it has undoubtedly attracted some attention both here, in London, and at home, it occurred to me that a few paragraphs on the question might not be out of place in a medical journal, even though it be one that does not pay any particular attention to mental disorders.

The latest report is that the musical clan has also begun to move, and that we shall soon be endowed with symphonies composed on cubist lines. Stirred to its very foundation by the noise that the other cubists have made in the world, it proposes to create new instruments, to emit sounds hitherto unknown to the ear; once armed with these new means of expression it will not be long in finding a way to use them, and we shall then be treated to something in music corresponding to the nightmare-painting down on the Quai d'Orsay, and to the "portrait of M. D." The notes of the scale will then no doubt be square, and the Melba of the coming era will have to have a right-angled mouth, in order to admit of the issue of rectangular sound-vibrations! Ours is unquestionably an age in which it is good to live! "S."

THE MILK COMMISSION OF THE NORFOLK DISTRICT MEDICAL SOCIETY.

MAY 10, 1913.

Mr. Editor: We wish to call your attention to an inaccurate statement in the paper of Dr. DeNormandie published in your issue of April 24, 1913, p. 617. He says: "We know of no medical society inspection of so-called 'inspected' milk."

The Milk Commission of the Norfolk District Medical Society was organized May 15, 1907. About 400 farms of dealers supplying the district were inspected and of these twenty-five were given our approval as trying to furnish reasonably clean fresh milk, suitable for the use of babies and invalids.

8,000 to 10,000 quarts of such milk are sold daily.

Yours very truly,

ROBERT W. HASTINGS, M.D.,
Secretary of the Milk Commission of the Norfolk District Medical Society.

REUNION CLASS OF 1883, HARVARD MEDICAL SCHOOL.

The class of 1883 of the Harvard Medical School is to hold its first reunion and dinner at the University Club, Boston, on May 26. Among the distinguished members of this class are General Leonard Wood, Dr. Raymond Guiteras and Dr. Eugene Fuller.

Those desiring further information may communicate with the Secretary of the Committee, Dr. S. H. Ayer, 318 Shawmut Avenue, Boston.

BOOKS AND PAMPHLETS RECEIVED.

Scarlatiniform Erythema by William Frick, A.M., M.D. Reprint.

An Unusual Case of Dilated Capillaries by William Frick, M.D. Reprint.

Fulguration and Thermo-radiotherapy by William Seaman Bainbridge, M.D., and Diathermy (Nagelschmidt) and Electro-Coagulation (Doyen) by Worthington Seaton Russell, M.D. Reprint.

Gunshot Injuries in Civil Practice by N. A. Powell, M.D. Reprint.

RECENT DEATHS.

DR. ROBERT WATTS EASTMAN, of New York, died May 5. He was born in Oswego, N. Y., in 1853, and was graduated from the medical department of the University of Buffalo in 1879.

DR. J. HAVEN EMERSON, of New York, died suddenly on May 4, at the age of 71 years. He was graduated from the College of Physicians and Surgeons, New York, in 1864. His son, Dr. Haven Emerson, is an associate in physiology and in medicine at Columbia University.

Original Articles.

PROTECTION OF MILK.

BY E. M. BUCKINGHAM, M.D., BOSTON.

THE object of this paper is to call attention to what I believe is a real danger, that in seeking to make milk a safe food we may rely too much upon its treatment of heat, and too little upon its careful production, that we may thereby retard improvement in production, and that by improper pasteurization we may introduce a false security and for young children an especial danger. There are large financial interests concerned in showing, if they can, that pasteurization is always reliable and that care in production is not so reliable. I shall mention certain epidemics that would have been prevented, had there not been a failure in pasteurization which had been relied upon to the exclusion of watchfulness in production.

I would by no means deny what all know, that common disease germs are destroyed by a known amount of heat, nor even that milk so heated is apparently well borne by infants for a long time. I say apparently well borne, because I hope to show that much of the heated milk in use is not heated as it is supposed to be, to a definite temperature, but because of the difficulty of the process, is heated to an unknown temperature. This uncertainty deprives of value the clinical results seen in well babies, so far as they tend to prove that pasteurization does not hurt them. It also exposes them to whatever danger there may be in superheated milk and it deprives us of the certainty of freedom from danger, should disease germs be present and the desired temperature not be reached. There is no reason why milk should not be treated by heat in emergencies, but there is, perhaps, a reason why at present we should not rely upon it exclusively.

My attention was first called to uncertainty in the exact temperature, by observing that milk modified by lime water and an excess of sugar of milk and pasteurized, sometimes did, and sometimes did not turn brown. Inquiry brought the statement that under these circumstances a chemical change takes place at certain temperatures, but not at lower ones and that this change accounts for the discoloration. Farther inquiry of an expert developed the statement than an exact temperature is very hard to obtain. It is easy to see why. If milk is heated slowly, it remains some time at a fermenting temperature. If this continues too long, the milk is spoiled. It, therefore, is desirable to reach the desired temperature quickly, and this makes overheating easy.

Some years ago I wanted a ready means by which milk could be pasteurized by untrained nurses, acting with a simple apparatus which automatically would stop increasing the heat when the desired degree was reached. Thinking I had reason to believe that much of the so-called sterilized milk was really not heated to the boiling point, to find what might be the facts, a series of experiments were carried on by my interne, Dr. Baldwin, at the Children's Hospital. This was done in the ward kitchen. The milk bottle, containing a modification then actually in use, was fitted with a thermometer held by the cotton packing so that the bulb was in the middle of the milk, and the stem passed through a cork, fitted into a hole that had been drilled through the lid of the heater so that it could be read. The bottle was surrounded by water to the height of the milk, and did not rest on the bottom of the heater. Underneath was an alcohol lamp. I have, unfortunately, lost my notes, but the results were disappointing. While the thermometer seldom reached the boiling point, there were great variations. Opening the window or the door or both, made a difference, although the heater was not in the direct current. With both closed, it was impossible to move quickly about the room without sensibly affecting the thermometer. This work seemed of no value except as showing difficulty.

The Baltimore epidemic of septic tonsillitis reported by Hamburger in the *Journal of the American Medical Association*, April 13, 1912, was traced to a certain dairy. It was shown that just before the outbreak the pasteurizing plant was closed for repairs, the management relying upon cold weather to keep the milk from spoiling. This neglected to guard against disease germs and the result followed. The Chicago epidemic reported by Capps and Miller in the same journal, June 15, 1912, was also traced to a certain dairy. Milk from the infected dairy was supplied to a hospital among others. The supply of the children's ward, with seventy cases, was received raw, and was pasteurized by the hospital. There was no case of infection. The supply of the rest of the hospital was pasteurized by the dairy plant, and there were numerous cases among internes and nurses, as well as in the community, showing conclusively, if it needed to be shown, that some treatment by heat is efficient; but showing also that treatment by heat is of no value unless properly done. During the Boston epidemic of 1912, I am not now speaking of the more severe epidemic of 1911, I reported all the cases of tonsillitis seen by me up to the date of the circular of the Board of Health, together with their milk supply. The supply was quite various and no inference could be drawn. Neither was I able at that stage to clinically distinguish between the cases. Later, when they were over, I could say that two of the cases were sicker and longer drawn out than the others, that enlarged cervical glands in one of these cases broke down and needed operation; also that in this last household there was a slight case beginning on the same day. These

two households both got their milk from a supply previously under suspicion and which was now pasteurized. If these cases really originated in milk, it was a case of failure in pasteurization. In the *Journal of Medical Research* for April, 1912, Schorer and Rosenau report careful experiments upon pasteurization in commercial plants. They point out many sources of failure, amounting at times to many degrees of temperature. They were able, however, to reduce the error to a few degrees by employing an automatic regulator, reheating the milk that passed over in the first few minutes, and repeating this reheating as often as any interruption occurred in the process, by also taking especial precautions to ensure that the heated milk should be well mixed, by allowing a certain margin of safety by heating a little above the required degree and by maintaining the heat for a sufficient time. They conclude that their studies emphasize the necessity for official control over all pasteurizing plants. I would suggest that even a good operator will be subject at times to nagging in order to hurry the product to market when milk trains happen to be late. Therefore it would be better, if possible, to protect milk from disease germs in the first place rather than to infect and then disinfect.

It appears to me that enough has been shown to perhaps explain the difference of opinion among clinical observers as to the clinical effect of pasteurization. They have not all been dealing with the same thing.

The Boston epidemic of septic tonsillitis in 1911 was traced to the milk of a certain dairy. Great pains had undoubtedly been taken at this dairy to give a good supply, and no particular blame can be attached to it for not foreseeing what had not before happened. It is, however, true that the incident was used by many critics to show that this event proved the need for pasteurization, by showing that care in producing and handling milk had failed. This criticism appears to me unsound, because there was an epidemic of tonsillitis at the time in the region whence the milk came, while so far as I know no attempt has been made to show that there was an efficient medical and veterinarian inspection of the farms. Here seems an obvious failure in an otherwise good system, and one that can be remedied.

Davis, in the *Journal of the American Medical Association* for June 15, 1912, states that at the time of the Chicago epidemic, above referred to, some of the milkers were severely ill and continued to milk regularly. Hamburger, in a discussion reported in the same journal of June 22, 1912, states that at Baltimore, patients with sore throats kept at work on the farms. An English epidemic at Colchester was stopped by removing from the herd a single cow that had mastitis. Both the Baltimore and Chicago epidemics could then presumably have been prevented by an efficient inspection of men and beasts. Of course such inspection should be official. It does not then seem chimerical to hope that the era of general pasteurization should come to an end in the not distant future. Pasteurization certainly removes an incentive from the farmer to do his best and I can but think that the prevailing tone of discussion on this subject is unfortunate. Doubtless pasteurization will always have a place as an additional precaution in emergencies.

It would not be fair to suddenly demand of farmers that all should at once come up to the level of certified farms, but much dirt could be cleaned up at little expense, and proper inspection could be supplied by the State. Medical inspection should possibly include members of milkers' families, and non-reporting of slight cases of illness could well be penalized. In the case of typhoid, the cause of which is well known, a single case traced to a milker shows that he is filthy in his habits and is unfit to work on food. Whether he has typhoid or not, we do not want a man to go from the watercloset to the milkpail without washing his hands. The money cost of a modern milk plant is great, and for this reason consideration should be shown to men already in the business. Bulletin No. 46 of the United States Bureau of Animal Industry for 1903 shows however, on page 120, that by intelligent, unremitting industry, it is possible even with antiquated stables to get a low bacterial count, as low on one occasion as 1500. Therefore a farmer who cannot afford to renew his plant may yet hope to produce a clean milk.

The especial danger, if it exists, to which infants are exposed by pasteurization is scurvy. This has been attributed to changes in fat, in proteids, to destruction of ferments and to other causes. It may depend on something not yet discovered, and its existence has been denied. Laboratory work has been done in this direction, but the question is essentially a clinical one. Since 140° for a sufficient time destroys pathogenic germs, and since there ought to be a margin of safety lest the heat is less than is supposed, and since the degree of heat may also be greater than is supposed, the real question is—Do babies acquire scurvy from a continued diet of milk heated to say 145° or a little over?

In solving this problem there are difficulties. It is certain that scurvy is caused not only by heated milk, but also by various forms of incorrect diet. Duty to our patients requires us to modify such diets as well as to omit heat, but by so modifying, we throw these cases out of consideration. The known effect of orange and lemon juice is such that in most cases it is a duty to prescribe them, but this again complicates the case. Rigid scientific proof is to produce scurvy by giving a good food properly heated, and then to see it disappear on removing the heat, but with no other change whatever. This for obvious reasons has not often been done. A few cases have been reported in which the conditions have been met, excepting that we do not know the exact temperature, only that the

milk is said to have been pasteurized. There is not much likelihood of mistaken diagnosis because the diagnosis is easy if one recognizes its possibility, but the small number of reports, although to be expected as explained above, may reasonably be objected to. I believe that the most we can say at present is that at some temperature, not yet determined, scurvy follows if the condition is maintained too long. Even this is disputed.

I conclude that the production of a good safe milk is not so hopeless as some would have us believe, but that it should be guarded by an efficient official inspection; second, that pasteurization is efficient, but that it, too, has its dangers and should also be guarded by an efficient official inspection; and third, that there is some evidence that pasteurization is injurious to young children and that for the present a safe raw milk is to be preferred for them.

This paper was written for the report of the Boston City Hospital. The present epidemic at Canton, Massachusetts, began after the paper was in the hands of the printer. This epidemic apparently bears out my three conclusions, if we accept the report in the *Boston Herald* of May 11. First, it would seem that this epidemic could have been prevented by proper medical inspection, clinical inspection, of the *men* employed. Second, pasteurization failed because of some unintentional error that should have been detected by an expert inspector employed by the State. Third, that it did fail, shows that all negative cases from this plant are of no value whatever in solving the question whether or not pasteurization can cause scurvy.

THE CONTROL OF THE CARELESS AND INCORRIGIBLE CONSUMPTIVE.*

BY MARK W. RICHARDSON, M.D., BOSTON,

Secretary of the State Board of Health of Massachusetts.

THE title of this paper carries with it almost of necessity four assumptions. First, that consumption, or tuberculosis of the lungs, is a disease communicable from person to person and, therefore, dangerous to the public health. Second, that such a disease must be the subject of adequate administrative control. Third, that this control, as exercised at the present time, is far from satisfactory, and fourth, that early and energetic action must be taken to correct the obvious defects in our prophylactic machinery.

The statement that consumption is a communicable disease will meet with no attempt at controversion from this audience. That consumption is a contagious disease is to my mind also incontrovertible, be the contact direct from the donor to the recipient as in droplet infection incident to cough, or as in kissing, or more indirect as seen in the use of common drinking cups or in the inhalation of dried sputum in the form of dust.

Our second proposition: That a disease thus shown to be communicable in a marked degree must be subject to adequate administrative control, needs no argument.

That this control of consumptives as exercised at the present time is far from satisfactory, is the almost unanimous opinion of those who know most about the subject.

It cannot be too strongly emphasized that the basic problem in the control of consumption is a sputum problem, and in this regard consumption does not differ materially from diphtheria, scarlet fever, and measles, but, although consumption causes annually nearly four times as many deaths as these other diseases combined, health authorities, even if they try their best, cannot begin to exercise, at the present time at least, over this disease the control easily possible with the other infections just mentioned.

The reason, of course, is not far to seek. Consumption is a slow-going process. The patient oftentimes seems and feels so well, that it is hard to believe such an individual dangerous to those in his immediate neighborhood. The relation of cause to effect seems so remote that its importance is oftentimes neglected. And yet the infection is a sputum infection just as much as it is in diphtheria, and, although running a chronic course, it is in a strict sense just as contagious. Indeed, if the annual consumptive mortality in a community occurred within a fortnight following an acute course of the disease, there would be no doubt or hesitation in the minds either of the health officials or of the laity, as to what measures of control should be immediately inaugurated. Nobody questions that chronic carriers of disease-producing germs such as those of diphtheria or typhoid must be brought under adequate control by force if necessary. The problem with the chronic tuberculosis germ-carrier is exactly similar. Such a carrier should be under immediate close supervision by the health authorities. To be sure, if he be intelligent enough and public spirited enough to take proper precautions, he may be allowed undoubtedly to associate with his fellows. If not, however, there is no reasonable doubt that he must be so restrained as not to constitute a danger to the public health.

Inasmuch as, therefore, there can be no doubt that the ignorant, careless and incorrigible consumptive is a great danger to the public health, why is it that most health authorities have made so little effort to control such a dangerous individual?

The chief reason for this failure to act has been, without question, the knowledge that public opinion in most communities would not support vigorously such a course. A second reason has been that few cities or towns have had at their disposal institutions properly equipped for

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

the care of such chronic diseases as tuberculosis. A third reason has been that many legal advisers to boards of health have ruled that the law, as at present enacted, would not justify the forcible restraint of these incorrigible consumptives, and that boards of health in attempting to enforce such restraint would thereby render themselves liable to suits for damages.

Personally, I do not believe these grounds to be well taken, and in support of my contention, I will cite the experience and practice of the Boston board of health. Boston has, of course, fairly adequate institutional equipment for the care, not only of its acute exanthemata and diphtheria, but also of consumption. The health department, furthermore, has detailed to it by the police commissioner, and for its especial service, 12 police officers. Whenever a case of disease dangerous to the public health is discovered, which case cannot be properly isolated at home, the patient is advised to go to the proper isolation hospital. If he refuses, the following procedure is carried out. The secretary of the board issues to the police officer the following order:

.....191....

To .....

Inspector.

You are hereby ordered to remove .....now ill with ..... at ..... street, to the Hospital for that disease.

By direction of the Board of Health,

.....Secretary.

It is arranged, furthermore, that an ambulance reaches the house simultaneously with the officer. The patient is then removed, forcibly if necessary, to the proper hospital.

The law under which this action is taken is Section 36 of Chapter 75 of the Revised Laws.

CHAPTER 75, REVISED LAWS.

Town Boards of Health shall provide Accommodations for Persons with Dangerous Diseases. Wage-earners held in Quarantine shall be compensated.

SECTION 36. If a disease which is dangerous to the public health breaks out in a town, or if a person is infected or lately has been infected with any such disease, the board of health shall immediately provide such hospital or place of reception, and such nurses and other assistance and necessaries, as is judged best for his accommodation and for the safety of the inhabitants, and the same shall be subject to the regulations of the board. The board may cause any sick or infected person to be removed to such hospital or place, if it can be done without danger to his health; otherwise the house or place in which he remains shall be considered as a hospital, and all persons residing in or in any way connected therewith shall be subject to the regulations of the said board, and, if necessary, persons in the neighborhood may be removed. When the board of health of a city or town shall deem it necessary in the interest of the public health to require a resident wage-earner to remain within such house or place, or otherwise to interfere with the following of his employment, he shall receive from such city or town during the period of his restraint compensation to the extent of three-fourths of his regular wages: *provided, however,* that the amount so received shall not exceed two dollars for each working day.

Once placed in such an isolation hospital, the patient may not leave without permission of the board of health, for, as stated in the above law, "all persons residing in or in any way connected therewith (*i.e.* the hospital) shall be subject to the regulations of said board of health," and the Boston board of health, as empowered by this section, has made the following regulation:

1. Whoever is infected with smallpox, scarlet fever, diphtheria, measles, typhoid fever, varicella, cerebro-spinal meningitis, anterior poliomyelitis or any other disease dangerous to the public health, shall immediately proceed to some isolated place or room designated by the board of health, and no person who has been so affected shall leave such place or room, and no article shall be removed from such place or room until the board of health shall certify in writing that all danger of communicating such disease to others is passed.

This regulation, furthermore, is made to apply not only to patients who have been forcibly placed in such hospitals, but also to those who entered such institutions voluntarily. The scope of action, moreover, has included such unreportable diseases as syphilis.

Under the above-mentioned statute and regulations, many cases of tuberculosis have been removed to the hospital. In most cases, the removal has not met with opposition. Forcible removal has been carried out as follows: 1910, 25 cases; 1911, 24 cases; 1912, 31 cases.

The validity of the Board's action has been attacked a number of times in the courts in relation to scarlet fever and diphtheria, but never with success. No patient forcibly removed for tuberculosis has as yet appealed against such action to the courts. The control just described can, of course, be exercised only within the city limits. Once out of the city, the health authorities become powerless further to restrain a consumptive. Cases, however, which through lack of settlement come under the charge of the State Board of Charity may be forcibly removed by this body in accordance with Chapter 395, Acts of 1904, which reads as follows:

[CHAP. 395.]

AN ACT RELATIVE TO THE CARE OF PERSONS INFECTED WITH DISEASES DANGEROUS TO THE PUBLIC HEALTH.

Be it enacted, etc., as follows:

SECTION 1. The state board of charity may, if found expedient, remove any person who is infected with a disease dangerous to the public health, and who is maintained or liable to be maintained by

the Commonwealth, to any hospital provided for state paupers, or may provide such place of reception for such person as is judged best for his accommodation and the safety of the public, which place shall be subject to the regulations of the board, and may remove such person thereto.

SECTION 2. Any expenses incurred in carrying out the provisions of this act may be paid from the annual appropriation for expenses in connection with smallpox and other diseases dangerous to the public health.

SECTION 3. This act shall take effect upon its passage. [*Approved June 2, 1904.*]

The State Board of Charity has never acted under this law in relation to tuberculosis. The law was passed to facilitate removal of lepers and it has been invoked only in cases of leprosy. As to action taken along similar lines by local boards of health other than Boston, I find only the following examples:

In Attleboro several years ago the local board of health had much trouble with a certain individual, now deceased, who was far advanced with tuberculosis. He was a miserable drunken person whom no one could control, and the board secured his admission to Tewksbury, from which institution he promptly eloped. The board, however, watching its opportunity, caused this man's arrest when intoxicated, as a common drunk, and he was committed to the State Farm at Bridgewater and treated there in a tuberculosis ward. At the end of his term, he returned to Attleboro and ultimately died there, no further attempt being made apparently to control his actions. Indeed, I understand that the Attleboro town solicitor gave as his opinion, that the existing law would not permit the board to restrain by force an incorrigible and careless tubercular person.

In Holyoke, furthermore, I believe the board of health arrested an individual sometime ago and arraigned him before the court because he left the tuberculosis hospital and refused to return. His case was continued, however, as he returned to the institution, where he died.

Haverhill is at the present time prosecuting an important case of the character under discussion. This individual was arrested on a complaint by the Haverhill Board of Health acting under Section 46 of Chapter 75 of the Revised Laws which reads as follows:

REVISED LAWS, 75.

Warrant may issue for Removal of Infected Persons

SECTION 46. A magistrate authorized to issue warrants in criminal cases may issue a warrant directed to the sheriff of the county or his deputy, or to any constable or police officer, requiring him, under the direction of the board of health, to remove any person who is infected with contagious disease, or to impress and take up convenient houses, lodging, nurses, attendants and other necessaries. The removal authorized by this section may be made to any hospital in an adjoining city or town established for the reception of persons having smallpox or other disease dangerous to the public health, provided the assent of the board of health of the city or town to which such removal is to be made shall first have been obtained.

A writ of habeas corpus is now sought by this man through his counsel, the writ being directed to the superintendent of the Haverhill City Hospital where the patient is detained. The patient claims that he has not tuberculosis and that he is being detained in violation of his constitutional rights. I may say, however, that similar habeas corpus proceedings have been instituted in the past against the Boston board of health without success.

As regards Section 46 you will also note that the removal contemplated relates only to institutions either in the affected community or in one adjoining thereto. Removal to more distant institutions such as the State sanatoria is not possible. It is, therefore, proposed to amend this section so as to allow such removal to be made to any public institution within the Commonwealth provided for such cases irrespective of the proximity of the institution to the community affected.

Finally, the opinion seems justified that health boards have support in law for much more drastic action as regards the careless and incorrigible consumptive than has been supposed, and that such legal support can be invoked with success, especially by those communities such as Boston which are provided with isolation hospitals for consumptives.

EFFICIENT BOARDS OF HEALTH.*

BY ROBERT N. HOYT, BOSTON,

Massachusetts Institute of Technology and Agent Wellesley Board of Health.

THE twenty minutes allotted to me are not sufficient to permit a comprehensive treatment of so big a subject as Efficient Boards of Health. I shall limit my paper, therefore, to the statement of a few main essentials for efficiency and of a plan of coöperation among adjoining towns to secure public health service of a high order at a reasonable cost.

Public hygiene or sanitation is one of the youngest sciences and is still in the period of rapid growth. Important discoveries, like the finding of the germ of infantile paralysis and the demonstration of one means of the transmission of this disease, are being made each year. Any board of health whch is out of touch with progress in sanitary science, is fighting disease in the old, blind, ineffectual way. To know your enemy is as important in the fight against germs as in any other battle.

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

The busy member of an unpaid board of health naturally finds it hard to attend sanitary conventions, but it could be confidently predicted that a great improvement in local health work would result if more boards were represented at the meetings of the Massachusetts Association of Boards of Health, and other organizations interested in the prevention of disease.

Every local board of health should consider a library on public hygiene a necessary part of its equipment and appropriate ten to twenty-five dollars a year for the purchase of authoritative books and periodicals which will keep them informed in health matters. There is no board so poor that it cannot afford two dollars a year for the *Journal of the American Public Health Association*, and the weekly reports of the United States Public Health Service and other publications of Federal and State Departments can be obtained free of cost.

Boards of health thus in touch with modern ideas will devote a greater part of their activity to the control of real causes of disease and death and transfer the supervision of those things which are merely unsightly or disagreeable to other municipal departments. Most boards of health prosecute the person who offends the nostrils by carrying manure through the street, although it is not a menace to health, while they allow the same man to keep his manure pile and breed thousands of disease-carrying flies, if only a bad odor is not created.

Popular education along public health lines is not generally regarded as one of the duties of a board of health. And yet I believe that it is absolutely necessary in most communities because the autocratic or bureaucratic methods which prevail in Europe would not be tolerated here. Proper moral and financial support for the board of health will come only when the citizens of each community have been taught the advantage and necessity of efficient sanitation. Popular education should do away with a great number of nuisance complaints made in ignorance of what constitutes a menace to health. The complaint of a college graduate that a pool of stagnant water covered with an ugly green scum was the probable cause of several deaths in the neighborhood failed to arouse a single smile when related to an intelligent audience recently. One man actually rose to inquire if the scum were not a dangerous source of disease. This fear of the harmless is matched by an equally ignorant and more fatal disregard of the really dangerous.

Publicity regarding the various activities of the board should accompany popular education. Columns of "Health Notes" in the local papers cost nothing and are very valuable. Newspapers eagerly accept articles on communicable diseases, flies, mosquitoes and the care of infants in season, as good copy. The regular publication of the results of milk analyses is the most effective way to secure improvement in the milk supply. Lectures and exhibits can be provided at little expense by using the public school buildings. Good lantern slides and moving picture films illustrating lectures on tuberculosis, milk, flies and mosquitoes can now be secured. The Russell Sage Foundation of New York City has established a Department of Surveys and Exhibits, which is glad to assist in securing materials or making plans for public health exhibits. Several cities have arranged to have this department make comprehensive surveys and exhibits of their sanitary conditions.

The annual reports of local boards of health too frequently consist solely of unexplained statistical tables and obscure financial reports and are seldom read by the people for whose benefit they should be written. It is surely due to the tax-payer and citizen that a clear account of the prevalence of disease, the nature of his milk, water and food supply, and a description of the methods employed by the board of health to protect his health be published. In the matter of financial statements, Massachusetts has made a notable advance through its uniform classification of municipal receipt and payments, but, as the authors of this classification admit, it is only a first step towards a classification by income and expenditure. To secure a similar improvement in all branches of annual reports of boards of health, the New Jersey Health Officers' Association has published a Standard Outline, and the Massachusetts Association of Boards of Health is preparing a model form for the same purpose. These schemes do not prevent originality and are easily adapted to the needs of cities and towns of various size and condition.

Surgeon George B. Young of the United States Public Health Service says, "Vital statistics are the foundation of scientific public health work which cannot begin without access to compilations of vital statistics." And yet how seldom do we find properly compiled vital statistics with correct interpretation of their significance! Unfortunately, the tendency of Boards to figure death rates for advertising purposes is aided by the failure of the State to insist on the recording of deaths in hospitals and sanatoria in the place from which the invalid came. It is a matter of common occurrence that a circle of small cities and towns with relatively poor sanitation are able to boast of a low death-rate because large numbers of their residents die in the hospitals of the central metropolis. In the case of tuberculosis, it is especially important that all deaths of residents, whether in town or out of town, be recorded in their place of residence. The number of deaths from tuberculosis is generally the only accurate indicator of the prevalence of this disease, as only a small per cent. of the cases are reported. The application of the ratio of eight cases of tuberculosis for every death from that disease gives startling results in communities that have congratulated themselves on a healthful population because few cases were reported.

A centrally located office with telephone connection, is generally recognized as an indis-

pensable part of the equipment of the board of health, but the efficient office methods used by successful business firms are seldom adopted. The antiquated ledger is too frequently retained where the more elastic and available filing system might be introduced.

The bacteriological laboratory for the diagnosis of communicable diseases and the examination of water and milk is as necessary to the board of health as the hammer and saw are to the carpenter. The local laboratory can save valuable time over the more distant and overtaxed State Laboratory in the diagnosis of diseases. For milk and water examinations it is indispensable. It is safe to say that the municipality that does not have frequent milk analyses made is ignorant of the nature of its milk supply. Experience has shown that dirty milk may come from a beautifully equipped dairy even when regular dairy inspections are made, for it is impossible to visit all dairies frequently enough at milking time to control their methods.

The constant bacterial control of the water supply is one of the most valuable contributions of the local laboratory. Monthly analyses by a State Laboratory may not prevent or even detect the cause of a typhoid fever epidemic due to an infected water supply, as Rockford, Illinois, has learned to her sorrow.

To apply sanitary science to the various needs of a city, the board of health must have a specially trained executive officer or agent. Specialization is the secret of success in the treatment of disease as it is in other applied sciences. This fact has led the Massachusetts Institute of Technology, the Harvard Medical School and other colleges to establish courses in sanitary biology, sanitary chemistry and sanitary engineering to fit men for the position of health officer.

In small cities and towns, it may be difficult to obtain sufficient money to secure a well trained health officer and necessary assistants and to equip and maintain an office and laboratory. While the amount of work to be done is not as great as in a larger community, the need of a good executive and a good laboratory is just as great. An obvious solution of this problem is the co-operation of adjoining municipalities for purposes of sanitation, sharing the expense of salaries and of the one central office and laboratory. Frequently one small city or large town is surrounded by a ring of small towns, the whole forming one community, trading at the same stores, buying milk from the same dealers, attending the same churches and schools and to some extent served by the same water supply. It is obvious that there are many common sources of infection and that duplication in dairy inspection, milk analyses, etc., would be avoided by co-operation. The advantage of this plan over State control is that there will be more local interest in this small organization, directly supported and directly responsible to the little community it serves than in the case of a general State organization, and that it does not have to wait for the passage of an act by the legislature.

The chief difficulty in the way of coöperative health work is political jealousy. This obstacle is avoided by a plan now being developed by Professors Sedgwick and Phelps of the Massachusetts Institute of Technology, who have organized a staff of trained men prepared to give efficient health protection to any group of towns at actual cost. Being under the wing of an educational institution, the organization is freed from political or commercial affiliations.

This plan is already in operation in a group of towns about Boston, comprising Wellesley, Framingham, Needham, Weston and Belmont. Other towns have accepted part of the service. The organization consists, first of a board of advisory experts, consisting of professors in the department of biology and public health. Each member is a recognized expert in some line of public health work and stands ready to give his advice and assistance when needed. Second, there is a working staff of trained men consisting of a health officer, a bacteriologist, and chemist and a plumbing and sanitary inspector. These men, with their assistants, plan to care for a circle of towns from a central office and laboratory. An automobile and motorcycle and the telephone furnish quick communication with all parts of the district served. It is expected that similar organizations will shortly be brought together from other districts.

This Technology plan of expert public health work for small communities marks an important step in the direction of progress. When it shall have been fully developed by careful trial and study and has been made to conform to practical working conditions, it will undoubtedly mark a distinct advance in modern sanitary science.

OPEN-WINDOW SCHOOLROOMS.*

BY ALLEN G. RICE, M.D., SPRINGFIELD, MASS.,

President Springfield Association for the Prevention of Tuberculosis.

THIS paper is in the nature of a plea for the open-window schoolroom versus the open-air school. The relative hygienic value of the two is obvious; and some time ago the decision on this point was rendered in favor of open-air schools. It is, however, this very possession of superior hygienic value that constitutes, strange as it may seem, the greatest evil of open-air schools; for the accent is wrongly placed on the "open-air" whereas the "school" is deserving of at least equal emphasis. It would seem almost as though open-air schools were looked upon as an end when, as a matter of fact, they are merely a means, and at that a means not necessarily

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

justified by the end in view. True, for years educational systems sadly neglected the physical welfare of school children, concentrating their efforts upon mental achievements at the expense of bodily health. Not until about a generation ago did the physical well-being of school children arrest tardy attention; with the result that, as time has gone on, more and more stress has been laid on their physical condition, even at the expense of their mental training. The pendulum has swung far beyond the mean, as is often the case in reform movements, until today relatively undue prominence is being given the physical condition of school children. Open-air schools undoubtedly mark the height of excursion to this opposite extreme, and a steady return to more normal levels may be confidently expected. Nevertheless, the experience gained from open-air schools is invaluable, for it has taught lessons that will never be forgotten and has made possible reforms that will never suffer relapse. The sane deduction from this experience is, however, that the hygienic value of open-air schools is not absolutely greater than that of other somewhat similar innovations, but is only relatively so. If, therefore, other procedures provide for school children hygienic surroundings only slightly inferior to those of open-air schools, and at the same time furnish superior advantages in other respects, that work for a better and more equal correlation between the training of mind and body, it is certainly expedient to prefer them. Of all departures tending to better the hygienic environment of school children, open-window rooms approach nearest to open-air schools, and are, therefore, worthy of pertinent consideration.

An open-window schoolroom is one in which, as the name implies, the windows are kept open, possibly injurious draughts diverted by various adjustable window-boards, and the temperature of the room maintained by artificial heat at from fifty to sixty degrees Fahrenheit. Such rooms have passed beyond the experimental stage and statistics are now available which aptly demonstrate their hygienic value. The percentage of attendance, for example, is found to be distinctly higher than in ordinary closed schoolrooms, and only slightly lower than in open-air schools. The improved attendance means that there are fewer absences from such causes as minor ailments, colds, headaches, indigestion, and the like; while a careful perusal of the health records shows that the incidence of measles, chicken-pox, whooping cough, diphtheria, and scarlet-fever is distinctly less. Furthermore, a larger percentage of the pupils in open-window rooms are promoted at the end of the year than is the case among pupils in the closed-window rooms; and when a similar comparison is made between pupils in open-window rooms and open-air schools, the difference in favor of the latter is so small that it is practically negligible.

It is, however, only when the improvement in the general physical condition of open-window schoolroom children is studied that the great hygienic value of that institution is fully appreciated. Rosy cheeks, bright eyes, animated spirits, absence of uncontrollable restlessness on the one hand and of sleepy dullness on the other—both direct results of vitiated air—are strikingly manifest. Freedom from coughing and snuffling is an equally marked feature. The remarkably healthy general appearance of the pupils is a picture hard to draw, one that must be seen in order to appreciate that it is unexcelled by a similar portrayal of open-air school pupils. A detailed physical examination of open-window school children reveals a notable absence of anemia, fewer adenoids and enlarged tonsils, better teeth, a lessened tendency to glandular enlargement, and better nutrition. Moreover, such statistics as are available reveal some striking instances of gain in weight, and an average gain but slightly less than that obtained in open-air schools.

Such improvement in physical welfare is worthy of careful consideration, and especially so when it is recalled that the only factor responsible is fresh air. The progress noted in open-air schools, on the other hand, is due not to a single factor, but to a combination of several. In the instances, for example, of striking gains in weight among open-air school children, it must not be forgotten that these pupils are given more nutritious food, both in quality as well as in quantity, than they would otherwise obtain.

Open-window schoolrooms, therefore, compare favorably with open-air schools even from a hygienic point of view. From an economic standpoint, they are far superior. In the first place, as regards expense, the initial outlay for an open-air school is necessarily large. Either a ready-made building must be bought or leased, a building so situated as to afford a proper environment and so constructed that it can be easily altered for the purpose—two requisites well-nigh impossible of discovery in a city of any size—or an entirely new building must be erected. In either event, with the present high cost of building material the outlay is considerable. Even if the roof of a convenient schoolhouse can be pressed into service, the construction of a suitable floor and a super-roof is expensive. Furthermore, after a serviceable building is ready for occupancy a large amount of necessary equipment is imperative, such as sitting-out bags, heavy felt boots, blankets, dishes, cooking utensils, and the like, to say nothing of a means and a place to prepare food, and a warm spot in which to serve it.

The inauguration of an open-window schoolroom, on the other hand, entails an insignificant initial expense. Any ordinarily conducted schoolroom can be made an open-window room by simply opening the windows and fitting into the casings cheaply constructed window-boards, so adjusted that they effectually divert any possibly injurious draughts. No other changes are called for. Certain refinements have, however,

been developed, such as cheese cloth tacked across the open sash to keep out rain and snow in inclement weather; more elaborate and nicely adjustable window-boards; and other minor improvements of a similar nature,—all exceedingly inexpensive.

The cost of maintaining an open-air school is even greater than the initial outlay. In the first place, such a school requires the services of a specially trained teacher, and such a teacher commands and receives a commensurate salary. On the other hand, any regular teacher is competent to teach in an open-window schoolroom and is, therefore, undeserving of special compensation. In the second place, an open-air school draws its clientele from a large area, not infrequently from all over a city, instead of from a limited area, a contingency that must at once be met by transportation facilities. While in most instances each pupil must himself meet the expense of his transportation to and from the school, there are cities which furnish free transportation, thereby establishing a bad precedent. In any case, the time required for transportation is a distinct and avoidable economic loss, and some one has to pay the actual cost. An open-window schoolroom, on the other hand, draws its clientele from its usual specified area, and the time and cost of transportation is nil. In the third place, because many of the pupils in an open-air school come from such a distance as to make it physically impossible for them to go home for dinner and return in the time allotted for the noon recess, a mid-day meal has to be furnished. Whether the school supplies gratis a whole meal to each pupil, or whether each pupil brings with him part of his dinner, some preparation of food is required, which further adds to the expense of maintenance. In some instances the teacher, in addition to her work of instruction, acts as cook, but only too often another person is employed in that capacity. This practice of furnishing food to school children free, either in whole or in part, is a very serious matter. The laws of this Commonwealth and of others wisely make it illegal for cities and towns to give meals to school children at public expense; and food so given, although by charitable organizations, is a culpable evasion of the act and breaks the spirit and intent of the law.

There are, however, other economic grounds than that of expense from which open-air schools are prone to assault. In public school education, as in everything else of a public nature, the aim should constantly be to give the most good to the largest number at the least expense. If, therefore, fresh air is good for selected school children it is good for all school children; and it is absurd, inefficient, and poor economy to give it freely to a selected few at a large per capita expense and to refuse it to the remainder. It would seem that the open-air school has become a hobby that is fast being ridden to a fall by certain enthusiasts, who to prove their contentions point with jealous pride to the wonderful results obtained in less than one per cent. of school children and shut their eyes to the needs of the ninety-nine per cent. The benefits of open-air schools are not for a moment to be decried, but the narrow policy that selfishly ignores the needs of the great majority in order to justify itself is to be condemned. If there could be unlimited open-air schools to accommodate all school children, it might be another affair; but no municipality is so ideally prosperous. Until that millennium arrives it would seem more economical, both as regards immediate and remote results, to spend time, effort, and money equally for all.

From an educational standpoint there are serious objections to open-air schools. They must of necessity be conducted as ungraded schools. Experience and the history of education emphatically prove that more efficient instruction can be given and better results can be obtained in public schools through some method of grading. Therefore, the assertion of open-air school enthusiasts that pupils advance as fast and learn as much in their ungraded schools as in the graded schools, cannot in the long run be true. The instances reported in which this occurs must be exceptional. Open-window school rooms, on the other hand, do not furiously fly in the face of experience, and by retaining some scheme of grading furnish thereby more efficient instruction.

Lastly, from a moral point of view the open-air school is objectionable. It tends, first of all, to develop a child asymmetrically by over-emphasizing physical training. It leads a child to become unduly conscious of certain bodily defects that in most instances can be corrected by less drastic measures. In many instances it forces a suggestible child to believe that he is a little different from normal in other ways; that his condition demands a little more than is due the ordinary child. He sees that he is fed, clothed, and given time to sleep at some one else's expense; and he comes slowly to regard himself as a special case that must be cared for at public expense. He grows to feel that the world owes him a living and has got to give it to him.

Open-air school enthusiasts maintain that their pupils get more than ordinary mental and physical training in their schools, in that they are taught personal hygiene, household tasks, table manners and the like. Such arguments are vain attempts to bolster up a failing cause by practices that out-socialize socialism. A child cannot be successfully taught body cleanliness by taking him into a finely appointed bathroom, where there are hot and cold water, soap, brushes, and clean towels in abundance. He must be followed into his own home and there be taught to make the best possible uses of the facilities his home possesses. Neither can a child be taught table manners at a noon meal five times a week when in his own home sixteen times a week it is a case of grab and grub. Such ideas are fetishes worshipped by deluded partisans to

the detriment of the child. Instruction so given is rarely permanent and when lasting only serves to make the child ashamed, disgusted, and intolerant of his home.

The teaching of table manners is important and every child should be taught them, but the home and not the school is the place for such instruction. A very few parents resent this usurpation of their prerogatives by the school; some parents are indifferent; but far too many are only too glad thus to shirk the responsibility that is really theirs. Parents tend to become even further demoralized and perhaps pauperized when experience discloses the lamentable fact that in many instances a free meal constitutes the greatest inducement that influences them to send their child to an open-air school.

It would seem, then, that the open-air school is not the last word. Conceived with but a single object in view, instituted with impulsive enthusiasm, and developed not step by step, but at a single bound, its possible consequences along lines other than hygienic were not foreseen. Moreover, even from a hygienic standpoint, experience with the innovation has brought forth something of a shock, for it has not proved to be the panacea for the physical ills of school children that was confidently hoped for. Certain children have not only failed to derive benefit from it, but have even suffered harm; and its application has had to be restricted. Sober, second thought has disclosed that the failure to regard possible consequences of the innovation along lines other than hygienic has been disastrous for its continuance as a valuable public institution. From an economic standpoint the open-air school is a poor investment; from an educational point of view it is a step backward; and from a moral standpoint it is unwise.

It would seem necessary, therefore, to recede a bit from the perilously advanced position that has been taken, and the next step backward is the open-window schoolroom. Its hygienic value is an accepted fact; economically it demands a minimum expense and affords equal advantages for all; educationally it keeps step with progress; and morally it has nothing to condemn it.

CONTROL OF THE CARELESS AND INCORRIGIBLE CONSUMPTIVE.*

BY C. T. CALLAHAN, ESQ., HOLYOKE

District Attorney, Western District, Holyoke, Mass.

THE discovery by the medical profession that tuberculosis is a communicable disease and that, to prevent the spread of the scourge, some control of the movements and conduct of persons afflicted with the disease is necessary gives rise to the very important question as to how far the State may invade the personal liberty of the individual in the attainment of its object. My treatment of the subject, "The Control of the Careless and Incorrigible Consumptive," will be that of a lawyer addressing himself to a consideration of the rights of the public on the one hand and of the patient on the other. Whether tuberculosis is a disease which can be cured, whether the danger of infection is so great as to threaten the whole community, and whether treatment of the disease in isolation may reasonably be expected to exterminate it are questions peculiarly for the determination in the first instance of the medical profession. If we except certain phases of the subject of insanity, it may be said that the law has always given profound respect to medical opinion. Thus, if the doctors should agree that tuberculosis was a communicable disease, menacing to the public health and that it could be appreciably controlled by isolation, their conclusion would be accepted by the courts as a fact of common knowledge and would be a strong element in their consideration of the extent of the powers of the State to suppress the disease.

Assuming the propositions advanced in favor of physical restraint to be established, how far can the State undertake to control the careless and incorrigible consumptive? In the last two centuries society has constantly enlarged its right to restrain persons afflicted with disease as a matter of self-protection. By the common law of England, the only remedy for the suppression of sources of disease was an action for damages or an indictment for nuisance. As medical investigation of public health probed deeper and deeper into the cause of disease, the law responded to the demands of the profession for corrective measures, and the enactment of such legislation has repeatedly raised the question how far the personal rights of the victim may be invaded in the interests of the common good. A few broad considerations lie at the foundation of all consideration and all discussion of the subject. It has always been held that, with birth itself, citizens are endowed with the right to enjoy life, liberty and property. But man has a right to natural freedom only in so far as the exercise of it is not inconsistent with the rights of others. The limitation is clearly stated in the preamble of our own bill of rights: "The body politic. . . is a social compact by which the whole people covenants with each citizen, and each citizen with the whole people, that all shall be governed by certain laws for the common good." In connection with this should be read the constitutional provision creating the right of men to enjoy and defend their lives and liberties, and the article granting full power and authority to the General Court to enact "all manner of wholesome and reasonable orders, laws, statutes, ordinances, directions and instructions. . . as they shall judge to be for the good and welfare of this Commonwealth."

The exercise of the police power thus con-

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

ferred on the Legislature has seldom been interfered with by the courts. In the phrase "wholesome and reasonable orders" and so forth, there would seem to be reserved to the courts a power to review and set aside an act of the Legislature relating to the public health which might unduly invade the personal liberties of citizens. But, as a rule, the courts have hesitated to place limits upon the legislative exercise of the police power. It has been held that it extends generally to the protection and preservation of the public health on the principle that the rights of individuals must give way to the community welfare. It has been held to be true of the right to personal liberty as well as the right to property. The power to hold persons in quarantine has been upheld. It has been clearly settled in this Commonwealth that "a man afflicted with the smallpox, or any other contagious disease dangerous to public health, has for the time being lost his right to personal freedom, and may be compelled to yield to restraint, carried, if necessary, even to compulsory isolation." So, that the public officers, in their discretion, might even remove to a hospital the person fallen ill, or care for him in the house in which he resided. On the general principle that individual right must yield to public right, it has been held that a person suffering loss of rents from the location of a properly conducted hospital in his neighborhood, has no remedy. The statute authorizing boards of health to require the vaccination of all the inhabitants, and imposing a fine for a violation of such requirement, was held constitutional in this State, and this decision was affirmed by the Supreme Court of the United States.

But decisions of this kind in this State appear to be limited to cases of smallpox or other virulent epidemics. That may be, and probably is, due to the fact that boards of health have been reluctant to exercise the powers conferred on them by the Legislature.

Before 1906 the statutes authorized boards of health, if a disease dangerous to public health broke out, or if a person was infected, to provide immediately a hospital or place of reception, and to cause any sick or infected person to be removed to it if it could be done without danger to his health, in which last event the house or place where the sick person was could be considered as a hospital, and the people living in the house could be subjected to the regulations of the board, and, if necessary, persons in the neighborhood might be required to move away. This power could be enforced by a warrant of the courts directed to a sheriff, or his deputies, or to any constable or police officer, requiring them, under the supervision of the board, to remove such person or "to impress and take up convenient houses, lodging, nurses, attendants and other necessaries." However, it was provided that these powers should not apply to smallpox except in cases of persons residing in boarding-houses or hotels, or in cases of two or more families occupying the same dwelling, or in other cases in which, in the opinion of the board and the attending physician, the case could not be properly isolated. In 1906, in addition to other amendments not necessarily material to this discussion, this statute was amended so that the power of removal of patients from their homes is no longer limited as to cases of smallpox, but appears to be restricted as to all diseases dangerous to the public health. It would appear, therefore, that even now the authority of removal in all cases is limited to boarding-houses or hotels or to dwellings occupied by two or more families, unless, in the opinion of the board, the case cannot be properly isolated. The opinion of the attending physician is eliminated as a factor in determining whether the case can or cannot be isolated, and, in all probability, the opinion of the board formed in good faith would be held conclusive in a case where the sick person was not living in a hotel, boarding-house or tenement building. By a later statute passed in 1907, the State Board of Health was authorized and directed to define what diseases shall be deemed to be dangerous to public health. I am informed that the State Board, in pursuance of this duty, has declared tuberculosis to be such a disease. Last year the Legislature recognized it in precise terms as a disease dangerous to the public health, in Chapter 151, amending Section 35 of Chapter 75 of the Revised Laws, relating to the establishment and maintenance of hospitals in cities and towns. In the amendment these institutions are described as "hospitals for the reception of persons having smallpox, diphtheria, scarlet fever, tuberculosis or other diseases dangerous to the public health as defined by the State Board of Health."

If we assume that in the statutes mentioned the Legislature has clearly expressed its intention to confer upon Boards of Health the power to enforce involuntary isolation in cases of tuberculosis, will the Supreme Judicial Court uphold the constitutionality of the Legislature's exercise of its police power in this particular kind of disease? The question ought to be put to that tribunal purely on its merits, and ought not to be complicated by unnecessary technicalities. It would be good preliminary tactics to codify all the statutes relating to public health, so there would be no possible question raised of the Legislature's meaning to bring cases of consumption within the power of boards to compel involuntary isolation.

Thus presented, the one issue for the court would be the constitutionality of the law. There can be little doubt that involuntary isolation will be resisted by many persons suffering from this disease. The issue presents some important and interesting considerations. It will be observed that the cases in which the exercise of the police power in the suppression of disease dangerous to the public health has been upheld, the courts had to deal with diseases vastly different in their nature, their infectiousness and their duration.

For example, in dealing with smallpox cases, it was indisputable that the disease spread rapidly, threatening entire communities, that isolation was necessary to its prevention, and, more important than all to the question before us, that, owing to the usual course of the disease, compulsory isolation was comparatively brief and meant no more to the patient, if he survived, than a temporary restraint of his personal liberty. I assume in favor of the medical profession that it would have no difficulty in establishing as facts in the case that tuberculosis is infectious and that isolation would tend to suppress it. But the issue presented, the invasion of personal liberty, guaranteed by all constitutions and by all law, is of such tremendous importance to the individual that I cannot conceive of a refusal by the court to receive evidence upon the question whether the law is "wholesome and reasonable" within the meaning of the constitution. Upon this question it is of prime importance to bear in mind that in the present state of medical treatment the curability of tuberculosis is at least in grave doubt. Unlike smallpox, diphtheria and scarlet fever, tuberculosis is not a disease of short duration. To isolate in some stages of it would mean a denial of personal liberty for life. Is the infectiousness of the disease of such a character that to allow unlimited personal liberty to its victims constitutes a real danger to public health? Would you be sure of your ground in maintaining that it assumed the character of an epidemic, as in the other diseases mentioned? If these questions can be answered affirmatively, would the court say that a law under which a sufferer might be deprived of his personal liberty for the rest of his days was "wholesome and reasonable"? To illustrate, it would be difficult to maintain that the application of such a law to cases of diabetes or pneumonia, for example, would be held "wholesome and reasonable." On the other hand, the peculiar disease under discussion, which enables its victim to walk about almost to his last hours, compelling him by its very agonies to cough into the air and to spit out, wherever he may be, germs that may prostrate others, would seem to fortify the demand of the doctors for power to control the movements of such agents of death. Whether authority to isolate, with its attendant restriction of liberty, severance of family relations and consequences to property rights, will be upheld by our highest court, I do not undertake to say.

However, it may at least be said that the contentions of the profession are entitled to the highest respect. A demand, fortified by so strong authority, should be passed upon as soon as possible for the common welfare. As citizens desiring the passage of "wholesome and reasonable" laws, we should all be anxious for the speedy determination of a question involving such tremendous consequences to mankind. As a lawyer, I shall be keenly interested in the court's treatment of it. By all means, press the issue. Ask for a codification of the statutes bearing on the subject. Proceed under them, and let the Supreme Judicial Court say the word which shall mean that the carrier of this disease may be isolated in the interests of the general welfare, or that the medical profession must define new rules, with penalties attached, for legislative sanction for the regulation of their conduct while at liberty.

ON THE FREQUENCY OF THE TRANSITION OF ULCER OF THE STOMACH INTO CANCER.*

BY JULIUS FRIEDENWALD, M.D., BALTIMORE,

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MUCH interest has been manifested in recent years, regarding the frequency of the development of cancer of the stomach upon the scar of an old ulcer.

Among the earlier writers, Cruveilhier (1839) and Dittrich (1848) were among the first to point to this condition, while Zenker in 1882 maintained that all cases of cancer of the stomach had their origin in simple ulcer. Hauser in 1883 was among the first clearly to point out histologically the transition of ulceration into carcinomatous proliferation. Since then various authors have differed widely concerning the frequency of this transition. Haberlen estimated 7% of cases occurring in this manner, Miculicz 7%, Lebert 9%, Rosenheim 6%, Fenwick 3%, Osler 2.6%, while Moynihan estimates it at 60%, William Mayo 54%, Graham 62%, and Wilson and MacCarty 71%. It is difficult to reconcile the great diversity of opinion of the various writers. While it is generally admitted that carcinoma of the stomach usually develops without presenting a previous history of prolonged gastric disturbance, it has frequently been maintained that this does not militate against the theory of the development of carcinoma upon the base of an occult ulcer, for Brinton has demonstrated the presence of gastric ulcer in about 5% of individuals, dying of diseases of all kinds.

Paterson has recently discussed this subject anew, and while he does not deny the possibility of a transformation of ulcer into cancer, he is doubtful as to the great frequency of this transition. He offers both clinical and pathological evidence in support of this view. In his clinical evidence he points out, that notwithstanding the fact that certain patients affected with carcinoma give a history of gastric disturbances lasting many years, this does not in any way indicate that these symptoms are due to ulceration; and furthermore, the fact that the patient has a history of gastric disturbance of long duration is not necessarily at variance with our views concerning the growth of cancers, for

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many cancers grow slowly, and extend over long periods.

He points to the fact that certain patients affected with cancer, upon whom gastro-enterostomies have been performed, often live two or three years after operation; on the other hand, he has observed cases in which cancer and ulcer of the stomach appear in the same individual independently, entirely separate from each other. In his pathological evidence Paterson points to the fact that, notwithstanding the statistics of Wilson and MacCarty, that 71% of cancers originate in the scar tissue of ulcer, the presence of the scar tissue is not necessarily evidence of non-malignancy, and the condition may be inherently malignant before it can be recognized as such, either clinically or pathologically. Again, ulcer of the duodenum is very frequent, while cancer is rare; and cancer is more common in the second portion of the duodenum than in the first, while ulcer is exceedingly rare in the second. If cancer develops from ulcer, then it should be much more frequently observed in the first portion of the duodenum. Paterson also points to the fact, that in many cases of ulcer gastro-enterostomies are performed, yet these patients rarely die of cancer afterwards, although the ulcer remains undisturbed. He points out, too, that but 1% of these cases die of cancer. Kocher reports 50 cases in which this operation was performed, the patients being observed for a period of from 2 to 12 years after operation, and in not one did a malignant change manifest itself. Gressot observed but 2.3% occurring after this operation.

Aschoff maintains that the relation existing between ulcer and carcinoma offers great difficulties, inasmuch as but very few writers have studied this question carefully. He notes the surprising fact, that a large number of chronic gastric ulcers, termed callous ulcer by the surgeons, which are apparently ordinary gastric ulcers, appearing microscopically as cancers, are really not ulcers degenerating into cancers, but cancers transformed into typical ulcers. In the material turned over to him by Enderlen, the typical appearance of ulcer could be regularly observed in the callous ulcers, while on the other hand, diffuse cancerous infiltration appeared in the base as far as the serous coat with relatively slight cancerous development in the borders, from which it may be definitely concluded that primary carcinoma with secondary ulceration existed.

In a study of 1000 cases of cancer of our own, in which careful records have been kept, there was a history of some previous digestive trouble in 232 cases (23.2%). Of the 232 cases 109 had slight attacks of indigestion for a period of five years or more preceding the present gastric disease, while 25 had slight attacks only during the last five years preceding the present disease. Of the remaining 123 cases, 32 had chronic indigestion more or less all of their lives, of which 29 had chronic indigestion mainly during the last five years preceding the present illness. Seventy-three cases gave a definite history of former gastric ulcer. It is therefore evident that in the 1000 cases, but 23 per cent. present a history of any previous digestive disturbance whatever, even in the slightest degree, and that but 7.3% give a direct history of ulcer. If, therefore, all of the former digestive disturbances be considered as due to ulcer, the formation of gastric cancer from ulcer could not have taken place in more than 23%; if all of the cases with slight digestive disturbances be disregarded in our series this percentage is reduced even to 12.3%. We therefore maintain, notwithstanding the sweeping statement of Wilson and MacCarty that "the 109 cases (71%) which present pathologic evidence, gross and microscopic, that is, large ulcers with scar tissue centers and overhanging borders, deep in the bases of which cancer is present, in almost every instance have unmistakably originated on the lesser curvature of the stomach, the usual site of gastric ulcer. Further, almost every case gives a clinical history of gastric ulcer for a long period of years preceding the relatively short period when the history became that of gastric cancer," that from a study of our own cases from a clinical point of view, as well as from the pathological studies of Aschoff, these figures are far too high, and that while we believe that gastric ulcers are at times transformed into malignant growths, we do not believe that this change takes place in more than 23% of cases and probably in not even so large a proportion.

TUBERCULOUS OSTEOMYELITIS OF THE DIGITS.

BY ROBERT M. GREEN, M.D., BOSTON.

TUBERCULOSIS of the bones of the fingers and toes, frequently termed for convenience tuberculous dactylitis, or *spina ventosa*, is apparently essentially a disease of infancy and childhood, since it is seldom observed to occur among adults. Moreover it is apparently also a disease from which spontaneous and almost complete functional and anatomic recovery is the rule, since permanent disabilities due to it are seldom seen during life and deformities referable to it are rarely reported at autopsy. For these reasons, it seems of interest to review its history, pathology, clinical manifestations and course, and to consider the therapeutic measures by which its natural recovery may be favored or expedited.

HISTORY.

The most complete historic account of tuberculous osteomyelitis of the digits was published in 1909 by Veluet,[1] who chose it as the subject of his thesis as a candidate for the doctorate in

medicine before the Faculty of Medicine of Paris. According to this writer the disease was first recognized as a clinical entity and described in medical literature under the term "rihk alschukah" by Rhazes, the Persian physician, about 850 A.D. Later it was known to medieval surgeons by the successive names of *flatum spineum*, *ventum spineum*, and *spina ventositas*. The term *spina ventosa* was first applied to it about 1550, the word *spina* referring to the painful, pricking character of the lesion, the word *ventosa* to the associated enlargement and hollowing out of the bone. This fanciful term, however, has long since been discarded for the more accurately descriptive pathologic name of the disease.

Boyer[2],[3] at the beginning of the nineteenth century, was the first to give an exact and complete modern description of *spina ventosa* of the foot and of the hand. And Nélaton,[4] in 1836, was the first to affirm its tuberculous nature. From this time, knowledge of the nature of the disease progressed *pari passu* with the developing knowledge of clinical surgery and of bacteriology.

In 1895 Roentgen's discovery of the x-rays gave a great impetus to the study of this as of all bone diseases. But it was apparently not until 1902 that the systematic publication and report of cases of tuberculous osteomyelitis of the digits began. In that year Allaire[5] reported four cases, with skiagrams, two without concomitant ulcerations and two with ulcerations and fistulae. In the same year Kienböck[6] reported six cases; Redard and Barret[7] in 1906 reported one; and Freund[8], [9] five in 1908 and one in 1909. In the latter year also Veluet (op. cit.) reported 12 new cases, with x-ray diagrams; and in 1910 Iselin[10] reported 16 cases. Subsequent reports of cases will be noted in succeeding sections of this article.

PATHOLOGY.

Lannelongue described the pathology of *spina ventosa* as "an infiltration with tuberculous granulations, the formation of a sequestrum, which may involve the entire diaphysis of the bone, often with very considerable rarefaction of the old bone, and the formation of new bone under the periosteum." Kirmisson,[11] who calls the condition tuberculous osteitis, says of it; "Tubercular granulations are to be found either in the deep surface of the periosteum or in the tissue of the bone itself, and these in their growth cause swelling of the bone and the characteristic appearance of the affection." In favorable cases the process may become arrested and heal without sequestration; in others there are sinus formation, purulent discharge, and associated ulceration of the soft parts.

CLINICAL CONSIDERATIONS.

Tuberculous osteomyelitis more often affects the hand than the foot, and more often the phalanges than the metacarpals or metatarsals. It usually begins as a moderately painful and tender, slowly progressive, fusiform swelling of the affected digit, with some reddening of the overlying soft parts. The affection may be single or multiple. It is often associated with tuberculous processes in the lymph-nodes or serous membranes or with tuberculous foci in other bones. X-ray examination shows bone-destruction and rarefaction, with characteristic hollowing out of the diaphysis and inflammatory thickening of the surrounding tissues. As stated above, there may be sinus formation and suppuration, or the process may heal spontaneously by resolution and absorption. The disease may run a course of from six months to several years. The amount of permanent anatomic and functional damage depends largely upon the extent of bone destruction. The joints are fortunately seldom involved.

Clinically the differential diagnosis of this condition is chiefly from pyogenic osteomyelitis, sarcoma, and syphilitic dactylitis. The chronicity and absence of acute pyrexia and leucocytosis are sufficient to distinguish it from pyogenic osteomyelitis. Sarcoma is rare, is almost invariably single, does not suppurate, and in the skiagram presents bone destruction and neoplastic hyperplasia without inflammatory reaction. Syphilitic dactylitis is more often single than tuberculous dactylitis, is often associated with other syphilitic stigmata, does not suppurate, improves rapidly under general treatment with potassium iodide, and in the skiagram shows marked periosteal thickening without bone destruction.

TREATMENT.

In the treatment of tuberculous osteomyelitis of the digits, general hygiene and local rest by fixation hold the foremost place. If these measures be promptly instituted in the early course of the disease, the majority of cases recover with relatively little anatomic deformity or functional limitation. Cheyne[12] says in this connection: "It is remarkable how often, if the affected finger is properly fixed and kept at rest, and the child placed under good hygienic conditions, the swelling subsides and ultimately entirely disappears, leaving very little trace behind." The natural tendency to spontaneous recovery, therefore, can be much aided, the duration of the disease shortened, and the anatomic and functional result improved by prompt and conservative treatment.

Opinions differ as to the best therapeutic course to be pursued when bone destruction and suppuration occur. Cheyne (*loc. cit.*) advises incision and curettage. Kirmisson (*loc. cit.*) suggests puncture by the actual cautery or injection of the abscess cavity with iodoform and ether. All authorities are agreed that amputation is rarely or never indicated. Personally, from my limited experience, I am inclined to believe that even incision is seldom desirable. I

have seen fluctuant swellings, from which sinus formation seemed inevitable, absorb without discharging, and therefore without prolonged suppuration or cicatrix formation. Incision, on the other hand, makes these inevitable, complicates the dressing of the affected part, and in my belief increases the subsequent deformity and disability. In the majority of instances I believe in refraining from incision. Even an angry-looking, fluctuant swelling may generally be left with perfect safety to form its own sinus by spontaneous rupture; the resulting drainage will be just as effective, the scar less, the period of convalescence shorter, and the ultimate result more satisfactory.

In illustration of these principles of treatment, I wish to record briefly the clinical history of ten cases of tuberculous osteomyelitis of the digits from the surgical out-patient clinic of the Children's Hospital, Boston. For the privilege of observing and reporting these cases I wish to express my grateful acknowledgment to Dr. James S. Stone, surgeon-in-chief to the hospital.

CASE 1. A. P. Age 2 years. Entered Dec. 4, 1909.

F. H. Mother living and well. Father dead.

P. H. Negative.

P. I. About four months ago swelling appeared on forefinger of left hand. Has increased in size. Very painful. Baby has rash on face.

P. E. On forefinger of the left hand is a fusiform swelling of the proximal phalanx. Some fluctuation, at inner aspect. Joints negative. X-rays show necrosis of the phalanx.

Patient did not return again until June 19, 1911. The process in the forefinger was healed, but a fresh focus had developed in the first phalanx of left fourth finger.

A splint was applied and worn continuously until Oct. 7, 1911, when patient was lost sight of.

Fig. I shows the radiographic appearance of the initial process in the proximal phalanx of the left forefinger, in this case in its acute stage.

Fig. II, taken 18 months later, shows this initial process healed, and fresh focus of infection in the distal extremity of the proximal phalanx of the left fourth finger.

CASE 2. J. McC. Age 1 year. Entered Feb. 26, 1910. Rec. 8443.

F. H. Father and mother living and well.

P. H. Bottle-fed.

P. I. For one month middle finger of right hand has been swollen. Gradually has been getting larger. Not painful.

P. E. Well developed and nourished child. First phalanx of right middle finger is symmetrically swollen, slightly red, not specially tender. X-ray shows t. b. process in proximal phalanx.

A splint was applied and worn continuously until July 2. During this time two superficial fluctuating areas appeared and were incised. On Oct. 9, these wounds were completely healed. There was some deformity of the finger, but good function.

Fig. III shows the radiographic appearance of the affected phalanx in this case during the stage of active suppuration.

CASE 3. E. G. Age 10 years. Entered Mar. 5, 1910. Rec. 8465.

F. H. Father, mother, one brother and one sister living and well.

P. H. Always well.

P. I. Five weeks ago a blister came on little finger of right hand. Child scratched it and it has become septic. Incised by private physician.

P. E. Child pale. Right middle finger much enlarged. Not tender, with two indolent ulcerating wounds of incision. No glandular enlargement at elbows or axilla. X-ray shows t. b. process in phalanges.

Treatment: Dorsal splint. Dry dressing. Bandage. The wounds discharged freely for a time, then gradually healed. The swelling diminished. The splint was omitted on June 18; and a spica bandage substituted. On July 16, 1910, the sinuses were closed. No local tenderness. Shaft of phalanx somewhat thickened. Some limitation of motion Aug. 7, 1911. Wounds healed. Almost complete restoration of function. X-ray and photograph Mar. 17, 1913. Same as at last note.

Fig. IV shows the radiographic appearance during the acute stage in this case.

Figs. V, VI and VII illustrate the functional and anatomic result 17 months later.

Fig. VIII shows the radiographic appearance of the completely healed process three years after the original onset.

CASE 4. M. H. Age 17 mos. Entered April 6, 1910. Rec. 8602.

F. H. Unimportant.

P. H. Bottle-fed baby; chickenpox and mumps in infancy.

P. I. Middle finger of left hand swollen for six months.

P. E. Well developed and nourished child. First phalanx of middle finger of left hand swollen, but not red or tender. Joints not affected. X-ray shows erosion and destruction of first phalanx of left middle finger; joints and carpus not involved.

A splint was applied and worn continuously until Aug. 3, 1910. Once a swollen fluctuant area appeared, but was not incised and subsided. On Aug. 7, 1911, the process was entirely healed, with slight deformity and perfect function.

Fig. IX shows the radiographic appearance in this case during the acute stage of the disease.

Figs. X, XI and XII represent the functional and anatomic result 16 months later.

This case illustrates the advantage of not incising a fluctuant area.

CASE 5. N. S. Age 3 years. Entered April 18, 1910. Rec. 8650.

F. H. Unimportant.

P. H. Breast-fed.

P. I. Discharged from Wellesley to Eye and Ear Infirmary for bilateral purulent ophthalmia. Left Infirmary last Friday. For two years has had

swelling of middle and fourth fingers of left hand, which were incised two months ago by private physician.

P. E. Well developed and nourished boy. At outer canthus of each eye is a scar of incision. Both conjunctival scars secreting freely, but not purulent. Under chin and on right cheek are suppurating superficial wounds. Over upper part of right shin is a discharging surgical incision, apparently superficial. About middle toe of left foot are several similar superficial suppurating wounds. Third and fourth fingers of left hand are enlarged and present several chronically suppurating incisions. X-ray shows tuberculosis of second phalanges of third and fourth fingers of left hand.

A splint was applied and worn continuously, with steady though slow improvement, until Aug. 10, 1910, when the case was unfortunately lost sight of.

Fig. XIII shows the radiographic appearance in this case, during the acute stage, with marked bone destruction and cavity formation in the affected phalanges.

CASE 6. R. C. Age 3 years. Entered July 19, 1910. Rec. 9655.

F. H. Father, mother and one sister living and well.

P. H. Negative.

P. I. Middle finger of right hand swollen since last April.

P. E. There is a symmetrical swelling of the middle phalanx of the right middle finger. X-ray shows t. b. process.

Treatment. Splint and bandage applied. The finger swelling became fluctuant. It was not incised, however, but allowed to open spontaneously, and the sinus dressed. The sinus did not close till Mar. 4, 1912. The splint, however, was continued. On Mar. 17, 1913, there was excellent restoration of function, and splint was omitted. Very little swelling of finger.

Fig. XIV shows the radiographic appearance in this case during the acute stage of onset.

Fig. XV shows the radiographic appearance during the suppurative stage, with cavity formation in the bone.

Figs. XVI, XVII and XVIII represent the final functional and anatomic result of the healed process.

CASE 7. M. K. Age 2½ years. Entered April 15, 1911. Rec. 9875.

F. H. Mother died of consumption. Father living and well. Two sisters living.

P. H. Unimportant.

P. I. Baby had pneumonia about two months ago. About same time small lump appeared on middle of back of left hand, which has steadily grown larger and for about three weeks has been red. Painful to touch.

P. E. Rather pale child. A slightly red boggy swelling on dorsum of left hand, not tender; joints negative. Examination otherwise negative. X-ray shows tuberculous osteomyelitis of the shaft of the middle metacarpal bone.

A splint was applied and worn continuously until May 22, 1912. On April 20, 1912, a fluctuant swelling over dorsum of affected metacarpal was incised. On Sept. 4, 1912, the process was healed, with excellent functional result and very slight deformity.

Fig. XIX shows the radiographic appearance of the middle metacarpal in this case during the active stage of the process before suppuration was established.

CASE 8. E. D. Age 7 2-3 years. Entered Oct. 14, 1911. Rec. 10,558.

F. H. Father, and mother living and well.

P. H. Breast-fed. Mumps at 4 years. Otherwise always well.

P. I. Two years ago fell and hurt left little finger. Six months ago a sore appeared on the injured finger.

P. E. Well developed and nourished boy. Left hand shows considerable thickening and two discharging sinuses in the region of the fourth and fifth metacarpals. Similar lesion at base of first phalanx of right great toe. X-rays shows t. b. process of fifth left metacarpal and of first phalanx of right great toe.

A splint was applied to the hand, a plaster cast to the foot. The latter was worn until Feb. 13, 1912, the former until Mar. 1, 1913. Swelling over hand opened spontaneously and discharged. On Mar. 17, 1913, the foot was entirely healed, the hand nearly so.

Figs. XX, XXI and XXII show the radiographic appearance of the affected foot and hand in this case during the acute stage.

Figs. XXIII, XXIV and XXV represent the functional and anatomic result of the nearly healed process in the hand.

CASE 9. F. F. Age 1½ years. Entered Nov. 4, 1911. Rec. 10,636.

F. H. Father, mother and three sisters living and well.

P. H. Delivery with ether and forceps at full term. Measles five months ago. Whooping cough five months ago. Mastoid operation four months ago.

P. I. Complains for past two months of swelling of various phalanges of both hands which do not appear to be painful. Little finger of right hand opened and pus drained two months ago but has not healed.

P. E. Little finger of left hand shows discharging sinus and two digits on the right hand show swelling of phalanges. X-ray shows t. b. processes.

Splints were applied, but the patient never again reported for treatment.

Fig. XXVI shows radiographic appearance of active tuberculous process in middle phalanx of left little finger; and more advanced process, with cavity formation, in proximal phalanx of right forefinger and in middle phalanx of right fourth finger.

CASE 10. G. G. Age 11 months. Entered March 4, 1912. Rec. 10,954.

F. H. Father and mother living and well.



Case 1. Dec. 4, 1909.



II.
Case 1. June 19, 1911.



III.
Case 2. May 3, 1910.



IV.
Case 3. March 5, 1910.



V.
Case 3. August 7, 1911.



VI.
Case 3. August 7, 1911.



VII.
Case 3. August 7, 1911.



VIII.
Case 3. March 17, 1913.



IX.
Case 4. April 6, 1910.



X.
Case 4. August 7, 1911.



XI.
Case 4. August 7, 1911.



XII.
Case 4. August 7, 1911.



XIII.
Case 5. April 20, 1910.



XIV.
Case 6. July 19, 1910.



XV.
Case 6. Feb. 28, 1911.



XVI.
Case 6. March 17, 1913.



XVII.
Case 6. March 17, 1913.



XVIII.
Case 6. March 17, 1913.



XIX.
Case 7. Jan. 10, 1912.



XX.
Case 8. October 14, 1911.



XXI.
Case 8. October 14, 1911.



XXII.
Case 8. October 14, 1911.



XXIII.
Case 8. March 17, 1913.



XXIV.
Case 8. March 17, 1913.



XXV.
Case 8. March 23, 1913.



XXVI.
Case 9. November 7, 1911.



XXVII.
Case 10. March 4, 1912.



XXVIII.
Case 10. March 19, 1913.



XXIX.
Case 10. March 19, 1913.



XXX.
Case 10. March 19, 1913.

P. H. Full term, normal delivery, bottle-fed, whole cow's milk. Chickenpox at four months. No known exposure to t. b.

P. I. About two months ago appeared a swelling of fingers of right hand. The swelling increased in size and after about three weeks a swelling of middle finger of left hand was noticed.

P. E. Well developed and nourished child. The first finger, middle finger and little finger of right hand, have greatly enlarged spindle-shaped swelling. The middle finger of left hand is similarly affected. Other digits apparently normal. Hands have no other swelling. Indurated dark red nodule size of a dime on the right cheek.

Treatment. Splints and bandages were applied to both hands. On March 9 a discharging sinus appeared on right little finger. From June 8 to Sept. 17 the case was neglected by parents. On the latter date splints were reapplied, the fingers were then much more swollen and red. From Nov. 6, 1912, to Mar. 19, 1913, child was again neglected. On latter date, fingers still much swollen. Splints reapplied.

Fig. XXVII shows the radiographic appearance of the initial active process in this case.

Figs. XXVIII, XXIX and XXX represent the anatomic and functional condition a year later.

It will be observed that in none of these cases were the x-rays employed therapeutically. This method of treatment has been suggested and practiced, apparently to considerable advantage, by a number of French and German surgeons. Albert-Weil[13] in 1912 reported six cases of tuberculosis of the fingers treated by x-rays with beneficial results and marked acceleration of the healing process. Similarly in the same year Rollier[14] reported, in a large series of cases of surgical tuberculosis, several cases of tuberculosis of the fingers treated by prolonged exposure to direct sunlight. And Vignard[15] in 1913 has reported two cases of tuberculosis of the fingers treated by artificial heliotherapy. The latest and most complete summary of the Roentgen treatment of surgical tuberculosis is in a very recent article by Neu,[16] who reports from Iselin (*loc. cit.*) four cases of tuberculosis of the fingers and toes cured in an average of three exposures each to the x-rays. This work of Neu has been awarded a prize by the medical faculty at the University of Bonn.

The essence of all irradiation treatment of surgical tuberculosis is apparently its stimulative effect upon natural reparative processes. In tuberculosis of the digits it would seem to be a valuable adjunct to the primary treatment by hygiene and fixation.

CONCLUSIONS.

1. Tuberculous osteomyelitis of the digits is essentially a disease of infancy and childhood, presenting a definite clinical picture and tending strongly to spontaneous recovery.

2. Pathologically it is characterized by bone destruction and rarefaction and by chronic inflammatory reaction in the surrounding soft tissues. It may heal by resolution and absorption, or by sequestration, suppuration, and sinus formation.

3. Its differential diagnosis from pyogenic osteomyelitis, sarcoma, and syphilitic dactylitis may be made by clinical signs and x-ray examination.

4. Its prognosis for anatomic and functional recovery is good and is proportionate to the amount of bone destruction and scar-formation.

5. Therapeutically primary emphasis is to be laid upon general hygiene and local fixation. Incision should rarely be resorted to, since it complicates the dressing, protracts convalescence, and increases subsequent deformity and disability. Amputation is almost never indicated.

6. Probably treatment with the x-rays, or other forms of irradiation, is a valuable adjunct to the conservative therapeutic measures above described, since it expedites recovery by stimulating natural reparative processes.

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Medical Progress.

PROGRESS IN INTERNAL MEDICINE.

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In a general survey of the progress of medical science in its advance from early historic ages to the present day it is impossible to avoid the reflection how little the great bulk of the current literature of any year contributes to the total of medical knowledge. The current literature of any year, or even of any month of recent years, far surpasses in volume our standard text-books of medicine; yet each edition of the textbook which appears from year to year is but little enlarged over the previous one. The articles of the

periodical literature may be compared to the waves of the sea on a rising tide, each of which expends its energy to accomplish little, if any, advance. Countless waves rise, break and are forgotten, for every foot of rise in the true level of the tide.

For this reason it has occurred to the author, as the time for a new report on Progress has arrived, that it may be not unprofitable for once to consider not the individual articles of the past year, few of which among the many will not swiftly pass into oblivion, but rather the teachings of the past decade which have stood, at least so far, the test of time. For while no one can read but a minute fraction of the articles published, each one of us must inevitably miss a certain proportion of the corrections of errors and additions to knowledge that have received common acceptance. The attempt is here made, therefore, to enumerate in brief mention the chief points in which the teachings in vogue at the time of the author's graduation in 1902 have since been modified and augmented.

An aid in the preparation of this review has been the appearance in the past year of a new edition of Osler's "Practice of Medicine," to the predecessors of which for twenty years the American student of medicine has turned for much of his early knowledge. To insure a familiar sequence in this article, the different diseases are mentioned below in the order in which they appear in this work, and a further debt may be here acknowledged for guidance by its subject matter.

TYPHOID FEVER.—PARATYPHOID AND COLON INFECTIONS.

Our conceptions of typhoid fever have been considerably modified by the demonstration that the disease, at least in its early stages, is a septicemia. While the chief anatomical lesions are in the intestinal lymphoid tissue, it is amply shown that with few exceptions in the first week of symptoms, and in some instances before the appearance of symptoms, cultures made from the blood reveal the presence of the bacillus typhosus. This fact has been utilized in practical diagnosis, and the technic of blood culture as a routine measure has been developed and standardized so that it has become possible to recognize the condition with certainty much earlier than formerly. Bacteriological studies have also added to our knowledge of the transmission of the disease and the sources of epidemics. The contamination of water, of milk and of foods has long been known as the result of pollution by the excretions of patients in the active stages of typhoid fever, but it has not been generally known until lately to what an extent the bacilli are harbored and excreted by so-called *carriers*, who may not be known ever to have had typhoid fever. It has become probable that it is to these rather than to the acute cases that the endemic presence of the disease is due. In the transmission of infection much attention has been directed to the rôle of the house-fly. It is shown beyond question that the fly is capable of carrying the infection. In the etiology of large epidemics, however, contamination of a water supply still deserves the position of chief responsibility; evidence of this is the experience of the city of Philadelphia, in which the institution of a safe water supply in 1907 reduced the number of cases of typhoid fever to less than one-fourth of their previous occurrence. Prophylactic inoculations against typhoid have established their value. While it is still imperfectly known how long a period of immunity is conferred it is satisfactorily proved that in circumstances of special exposure to infection, as in army manœuvers or among hospital attendants, it has been possible to eliminate the danger of incidence of the disease. In the treatment of typhoid a marked tendency is evident to allow a more generous diet than was formerly given. It may be that this tendency has been in some instances carried too far, yet it may safely be stated that with due caution in guarding against overtaxing the patient's powers of digestion it is commonly possible by rational feeding to maintain better nutrition than was possible under the restrictions formerly in force.

Blood cultures in cases of continued fever have in certain instances yielded bacilli of the paratyphoid and colon groups instead of the typhoid bacillus. The pathology of these cases is not as yet sufficiently known, but their clinical course is closely similar to that of a somewhat mild typhoid infection.

PYOGENIC INFECTIONS.—DIPHTHERIA.

Studies of types of general and of local sepsis due to cocci of the pyogenic group have led to the suspicion that these organisms, while morphologically similar in reality should be divided into more different varieties and strains than have heretofore been recognized. In certain epidemics as in that of tonsillitis in Boston in 1911, complicated in many cases by peritonitis, the peculiar features are best explained by a peculiarity of the infecting organism.

The diagnosis, both bacteriological and clinical, of diphtheria has been advanced by studies of bacilli and of diphtheroid inflammations which may simulate those of true diphtheria. In treatment the knowledge of serum diseases or anaphylaxis, which has taught us that a previous injection or other ingestion of certain substances may so "sensitize" an individual that subsequent injections of the same substance may be followed by serious or fatal reactions, suggests a possible explanation of certain instances of collapse or death following antitoxin injections. The fact that this has occurred in patients subject to asthma excited by the odor of horses, suggests that they may have been sensitized toward some substance contained in the horse serum of the antitoxin.

PNEUMONIA.—MENINGITIS.—INFLUENZA.—WHOOPING COUGH.—GONOCOCCUS-INFECTION.

In acute febrile diseases, of which pneumonia may be taken as representative, studies of the circulation in life and of the distribution of the blood after death have rendered it probable that the fatal outcome is not as a rule due, as was formerly thought, to heart failure, but rather to vasomotor failure. As the course of the disease progresses and the patient's exhaustion increases, the blood pressure gradually falls although the heart beats with increasing rapidity. As the final collapse appears a further sudden fall in blood pressure takes place; the patient becomes pulseless although the heart may beat for a brief period with its rate undiminished. At post mortem in such cases the heart is not found distended as in cases of heart disease, but rather poor in blood. It seems probable that, except in heart disease, and in a minority of the cases of pneumonia, the immediate cause of death in febrile disease, and perhaps in all other fatal diseases, is not asystole, but rather the loss of vasomotor tonus from paralysis of the vasomotor center in the medulla, as has been studied, particularly in connection with surgical shock. It is known that the heart cannot continue to beat if the blood pressure in the coronary arteries falls below a certain level, but the fact that the blood pressure falls below this level is believed to be due to a paralytic dilatation of the abdominal and other peripheral vessels and not to cardiac insufficiency. In certain cases of pneumonia it is true cardiac insufficiency and dilatation with death from asystole is found. This is, however, the exception rather than the rule. The supportive treatment of pneumonia, therefore, is to be directed chiefly toward stimulation, not of the heart, but of the vasomotor center. For this purpose the most efficient agent at present known is fresh air; when the patient's bed is moved to a roof or balcony or to an open window the improvement, both subjective and objective, is often striking. Of the various drugs, caffein seems to be the most efficient; adrenalin may be tried but its action is of too brief duration to be of much service; strophanthin, intravenously, may be tried as a last resort. The value of strychnine and of camphor is disputed.

The work of Flexner and the serum treatment of meningitis is so well known that no description is needed. The evidence of its value is still accumulating.

In addition to the typical acute infection and to the chronic bronchitis due to the influenza bacillus, this organism has been found to be responsible for occasional cases of meningitis, of endocarditis, and of general septicemia.

In 1906 Bordet and Gengou described the organism now commonly accepted as the cause of pertussis. In the past year Mallory has demonstrated this organism with characteristic lesions in the trachea of children and has produced similar lesions in animals by infection with the organism. From his observations it is strongly suggested that a prominent cause of the symptoms is the mechanical interference of the organisms with the action of the cillia of the epithelium of the trachea and bronchi, preventing the normal propulsion of secretions toward the larynx.

Blood cultures and clinical studies have here shown that the former belief that gonococcus infection did not cause endocarditis is subject to occasional exceptions. A number of cases have been reported in which endocarditis developed and in which the gonococcus was cultivated from the blood. From the diagnosis of latent infections by this organism a complement fixation reaction has been developed which promises to be of service. Gonorrheal arthritis is a condition in which vaccine treatment has been extensively used, in many instances with apparent benefit.

BACILLARY DYSENTERY.—PLAGUE.

The bacteriology of dysentery has been carefully studied both in adults and in children. A large proportion of the more severe cases of infantile diarrhea have been brought under this head. Several allied organisms have been described, but that of Flexner seems to be the chief one in America. A serum treatment has been used with some success.

As medical investigation has extended itself from European civilization to remote parts of the world the so-called bubonic plague has attracted attention, in part from its importance where it has recently prevailed, but still more from its known power of epidemic invasion, as in the "black death" of the fourteenth century in Europe. Of great significance in preventive medicine is the rôle of the fleas of rats in transmitting the disease.

TUBERCULOSIS.

In tuberculosis the progress of the past decade has been more in the refinement and extension of principles previously known than in the development of new knowledge. In diagnosis the tuberculin reaction has been improved by the use of smaller initial doses to avoid severe symptoms. The cutaneous reaction of v. Pirquet has proved of value in children. The x-ray examination of the chest has supplemented older physical methods. A method of treatment which has gained ground of late years, although its value is not yet established beyond question, is that of the production of pneumothorax. Tuberculin treatments in many modifications have been carefully followed, but no distinct advances have been made. Much has been accomplished by emphasis upon early diagnosis, by the isolation and supervision of tuberculous cases and by the

extension of sanatorium treatment. The administrative methods of working toward these ends by class treatment, by social service investigation, and by popular instruction, show progress of the highest type.

AMEBIASIS.—TRYPANOSOMIASIS.—SYPHILIS.

The diagnosis of amebic dysentery has been somewhat complicated by the differentiation of amebae found in human stools into a number of different species, only some of which are pathogenic. In treatment there has been a revival of the use of ipecac, modified by giving the drug in salol-coated pills to avoid dissolution in the stomach. While this method is still on trial, some reported results are highly promising.

In tropical medicine perhaps the most important line of investigation has been that directed toward the study of trypanosomes, particularly with reference to the so-called sleeping sickness of Africa. The parasite of this disease has been identified and its presence in fluid aspirated from the lymph glands has been used extensively as a clinical test. The tsetse fly has been shown to be the source of infection in man. Various arsenical compounds, notably atoxyl and salvarsan, as well as antimony, have been used with considerable success in treatment.

In no disease have the advances of the past decade been more striking than in syphilis. The discovery of the *Treponema pallidum*, the so-called spirochete of syphilis, has been the entering wedge by which the subject has been laid open. The demonstration of this organism has made possible the positive clinical diagnosis of primary and other external lesions, and has further given conclusive proof of the syphilitic nature of pathological lesions studied at autopsy, notably in the heart and in the arteries. Next came the Wassermann reaction of complement fixation, which has revolutionized the clinical diagnosis of syphilis, and has also furnished a means of determining the adequacy of treatment. The Noguchi reaction of similar nature is perhaps of no less value. More recently the luetin test, a cutaneous reaction, has been introduced; while not yet finally established, it may be found to play an important rôle. In treatment, the discovery of salvarsan ranks as one of the highest achievements of scientific medicine.

HOOKWORM DISEASE.—TYPHUS FEVER.—YELLOW FEVER.—ACUTE POLIOMYELITIS.—RHEUMATIC FEVER.

The recognition and control of hookworm disease, especially in Porto Rico, is a fair illustration of the success of modern medicine on a large scale. As a result of the knowledge that the source of infection is the fecal discharges of infected persons and that the means of entry is through the unprotected skin of the feet and legs, the prophylaxis has been advanced. In the cure of infected persons the thymol treatment has proved entirely adequate.

Typhus fever in its old form has long been rare. There is some reason to believe that it was spread by vermin which have been eliminated by modern sanitation. It is probable, however, that typhus fever in a modified form has reappeared in the condition known as Brill's disease, of which a number of cases have been reported.

The abolition of yellow fever, first in Havana and more recently in the Canal Zone, has robbed the tropics of one of their worst dangers.

The recent prevalence of infantile paralysis has led to an enormous amount of study upon this subject. The most practical result so far attained is the proof by Rosenau, apparently conclusive, that the transmission is by means of flies.

The long continued search for a bacterial cause of rheumatism has perhaps been ended by the demonstration of the *Micrococcus rheumaticus* of Poynton and Payne. This organism has not yet been universally accepted, but its claims are stronger than those of any previously proposed.

PELLAGRA.—BERIBERI.

The sudden leap into prominence in Southeastern America of pellagra has made this disease one for which it is necessary for all to be on the watch. Its nature, however, still remains a mystery. Its connection with the eating of Indian corn at present seems less likely than was formerly supposed.

In beriberi the question of diet in connection with the etiology is much discussed. Among Oriental races it seems to have been established that the use of rice which has been subjected to a polishing process leads to the appearance of beriberi. The disease has occurred, however, in places where rice does not form an important staple of diet. The prevailing belief at present is that the cause of beriberi is a deficiency in the diet of some necessary substance present in the surface of rice grains which is provided in a normal diet also by other forms of food.

DIABETES.

This subject has been studied chiefly with regard to the influence of internal secretions, not only of the pancreas, but also of the thyroid, the parathyroids, the chromaffin system and the hypophysis upon the sugar metabolism. The results are well stated in the recent writings of von Noorden, whose work, with that of his associates, has done much to advance this subject. It is believed that the immediate cause of the glycosuria in diabetes is the appearance of an excess of sugar in the blood, due to an abnormal discharge of sugar from the liver. This discharge of sugar from the liver may be stimulated

by overaction of the chromaffine system, which may in turn be stimulated by the central nervous system. Excessive discharge of sugar from the liver is normally inhibited by the internal secretion of the pancreas; this action of the pancreas may be increased by the influence of the parathyroid glands or diminished by that of the thyroid and of the hypophysis. Diabetes may theoretically be produced by any of these influences which lead to an excess of sugar in the blood, but practically in human cases the fault lies either primarily in the pancreas or in the influences which bear upon its action in controlling the mobilization of sugar.

GASTRIC ULCER.—GASTRIC CANCER.—CIRRHOSIS OF THE LIVER.—ACUTE PRIMARY PERITONITIS.

For an extended summary of this subject the reader is referred to the author's report in this JOURNAL in 1911. Of chief importance have been the introduction of the Lenhartz diet and the increasing application of the operation of gastroenterostomy.

In the diagnosis of cancer of the alimentary tract the extension of the use of tests for occult blood, especially the guaiac and the benzidin tests, has proved its worth. The significance of evidence of gastric stasis as reason for suspicion of pyloric cancer has been more fully realized, while the importance attached to the presence or absence of free hydrochloric acid in the result of test meals has lessened. A contribution of great interest has been the demonstration from the Mayo Clinic of the frequence with which cancer is found to have developed upon a pre-existent ulcer.

Mallory's studies upon the histologic types of cirrhosis form an important contribution. Clinically most has been written upon the rarer forms, especially syphilis of the liver and pigment cirrhosis, or hemochromatosis, often associated with diabetes. Capsular cirrhosis has received attention in connection with polyserositis and adhesive pericarditis.

Purulent peritonitis occurring without obvious antecedent diseases of the abdomen has been reported in a considerable number of cases. Many of these have been pneumococcus infections, but those in our recent epidemic of tonsillitis were due to a streptococcus.

ASTHMA.—DISEASES OF THE KIDNEYS.—DISEASES OF THE BLOOD.

The theory of the nature of asthma has received new additions from the similarity of the asthmatic paroxysm to certain manifestations of anaphylaxis. The use of subcutaneous injections of adrenalin for the relief of symptoms in the attack has proved of value in many cases.

The diagnosis of nephritis, especially in the late stages of chronic parenchymatous and in chronic interstitial nephritis, has been materially aided by the realization of the significance of increased blood pressure. In the treatment of renal insufficiency much has been written on the limitation of protein in the diet, and also of the exclusion of salt. The practical results of these measures, however, have not been conclusive.

With the introduction of improved and simplified methods of blood examination the past decade has been filled with careful studies of the anemias and of allied diseases. Chlorosis has been brought completely under control by the use of iron, but pernicious anemia still proves refractory. In leukemia of the splenic myelogenous variety, systematic exposures to the x-ray have been found to have considerable effect in temporarily checking the disease, but the ultimate result is not altered. In hemorrhagic conditions transfusion has been applied with striking success.

DISEASES OF THE HEART.—THYMIC ASTHMA.

Since this was the subject of the author's report of last year it may here be passed lightly. The most important advances have been in the investigation of the muscular function and its disorders, notably heart block and auricular fibrillation, and in the recognition of the rôle of syphilis in causing disease both of the myocardium and of the valves. In aortitis and in aneurysm, the syphilitic basis has been established in a large proportion of the cases.

Disturbance of respiration associated with enlargement of the thymus has long been recognized, occurring in paroxysms often fatal. In recent years a number of reports have appeared of surgical removal of the thymus. Yet there is reason to hope that the necessity of this operation may be slight if the present promise of the x-ray treatment of thymic hypertrophy is confirmed.

GRAVES' DISEASE.

Discussions of this disorder have been much in evidence both from the medical and from the surgical points of view. Of late years there has been a tendency, as mentioned in Crile's recent article, to believe that the hypertrophy and overactivity of the thyroid are manifestations of a disturbance not primary in that organ, but rather secondary to some influence which abnormally stimulates the function of the thyroid. The source of such stimulation, according to Crile, may well be in the muscular system or in the neuromuscular apparatus which, according to psychologists, originate the emotions. However this may be, practical experience leaves no doubt of the importance of bodily and psychic rest in the treatment of the disease. This has been recognized both in the medical treatment of the condition and in the management of cases preparatory to operative treatment. Much has been done in attempts to influence the disease by means of extracts and sera, but certain success

has not yet been attained. In drug treatment the neutral bromide of quinine has been favorably mentioned.

THE HYPOPHYSIS.

Of the various glands of internal secretion, of which so much has been written of late, the pituitary body has received its share of attention. This organ is divided into an anterior and a posterior portion. Each of these portions apparently performs certain functions by means of internal secretions, the functions of the two being distinct from each other. The anterior portion seems to have to do with skeletal development, which is stimulated by its overactivity. The influence of the posterior portion is more complex, the evidence tending to show that its overaction leads to glycosuria, loss of flesh and activation of the generative organs, while deficient function produces increased tolerance for sugars, adiposity and lessened sexual activity. From this and from other evidence, it seems to be proved that in acromegaly and gigantism the condition is not, as was formerly supposed, a lack of pituitary function, but rather an excess of function of the anterior portion. Moreover, a new clinical type of disorder has been described, attributed to deficient function of the posterior portion, characterized by adiposity, lack of sexual development, both genital and extragenital, increased tolerance for sugars, and certain nervous and mental disturbances. Cushing has recently described cases in which disturbance appears to have been present in the function of both portions of the hypophysis, with increased activity of the anterior lobe and deficient function of the posterior, evidenced by skeletal overgrowth, combined with adiposogenital dystrophy.

Such a general review of the field of internal medicine, inadequate as it may be, at least serves to correct in the mind of one discouraged at the futility of much of the current literature the impression that practical medicine is not advancing. It is true that much that is written is mere repetition, and that many lines of investigation have led into obscure regions, in which the promise of valuable discoveries is slight. The complexity of methods and of theoretical considerations has become to some extent a barrier between medical science and practical medicine, yet can we maintain that this barrier is insurmountable when from the remotest regions of medical science comes a practical aid like the Wassermann reaction? The many unworthy reports are quickly discarded and forgotten, but those that receive reliable confirmation deserve general recognition as true progress.

ILLNESS OF THE MIKADO.—Report from Tokio, Japan, on May 25, states that the Emperor Yoshihito is ill with pneumonia, but that the crisis occurred on May 23 and he is expected to recover.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

MEETING OF WEDNESDAY, APRIL 2, 1913, AT 8 P. M. THE PRESIDENT, DR. JAMES C. WILSON, IN THE CHAIR.

THE DEVELOPMENT OF THE NASAL ACCESSORY SINUSES IN MAN.

DR. WARREN B. DAVIS: This paper is a synopsis of a year's research work done in the laboratories of Friedrickshain Krankenhaus, Berlin, and in the Daniel Baugh Institute of Anatomy, Philadelphia. The material studied consisted of 145 specimens (290 lateral nasal areas) forming a series covering all stages of development from the sixtieth day of embryonal life to maturity. Numerous lantern slide illustrations made from drawings of selected specimens are used. Sixty-day embryos showed presence of concha inferior, two ethmoidal conchaem agger nasi and beginning development of the processus uncinatus. The superior concha and processus uncinatus contain at this time no cartilaginous structure.

Eighty-five-day embryos showed the early development of the bulla ethmoidalis and beginning lateral pouching from the infundibulum ethmoidalis which represents the primitive ostium maxillaris. There is also in the spheno-ethmoidal recess an evagination of the mucosa in a postero-inferior and slightly lateral direction, representing the primitive sinus sphenoidalis. In a 137-day fetus this development has distinctly extended into the posterior portion of the cartilaginous nasal capsule. The portion of the capsule forming the antero-inferior wall of the primitive sinus becomes the concha sphenoidalis or ossiculum Bertini.

Ethmoidal cells develop from the preformed ethmoidal furrows. During the fourth fetal month there appear cylindrical extensions of epithelium into the lateral ethmoid masses which by the seventh or eighth fetal month become hollowed out and form primitive ethmoidal cells.

The usual number of ethmoidal conchae in fetal and also in post-natal specimens was three; four were not uncommonly present and in one fetus five were clearly demonstrable.

The expansion of frontal cells, of the infundibulum or of infundibular cells it distinctly seen in late fetal and term specimens, yet in the average case one cannot say definitely which expansion represents the primitive frontal sinus until after the sixth month of post-natal life.

In the second year the frontal sinus usually begins its ascent into the vertical portion of the frontal bone and in the third year its highest point averages 3.8 mm. above the level of the nasion. The diameters show a gradual increase which by the 16th year usually reaches the average adult size.

The sinus maxillaris showed an increase in size which averaged approximately 2 mm. in both the vertical and lateral diameters and 3 mm. anteroposteriorly for each year up to the eighth year after which the increase is less rapid. The floor of the average maxillary sinus after the eighth year is below the level of the nasal floor.

The ostium maxillare has no embryological significance. The youngest specimen showing such an opening was four years and three months old. Accessory ostia were present in 15 per cent. of all cases between 4 and 24 years of age. Accessory ostia were present in 37.5 per cent. of all cases in which tuberculosis was the cause of death, and in only 7.7 per cent. of cases in which death was from other causes. This suggests that the lowered vitality due to tuberculosis may be a predisposing factor in the development of the accessory ostia. In 76% of cases having accessory ostia there were mucous cysts varying from ½ mm. to 10 mm. in diameter arising in the mucosa lining the medial wall of the sinus maxillaris.

The development of the sinus sphenoidalis was found to be more rapid than is described in textbook descriptions. It develops in a postero-inferior and slightly lateral direction at first occupying a position antero-lateral to the body of the sphenoid and bounded anteriorly by the concha sphenoidalis or ossiculum Bertini. During the second year there is beginning extension into the body of the sphenoid and also a rapid increase in an infero-lateral direction thus bringing the wall of sinus early into close relation with the cranial nerves passing lateral to the body of the sphenoid. The resorption of bone extends medially and posteriorly, and by the sixth to the eighth year has extended beneath the anterior portion of the hypophysis and the sphenoidal septum has been decreased to about 1 mm. thickness. Later recesses may extend in any direction but are most frequently found in the pterygoid processes.

Dr. W. M. L. Coplin: Dr. Davis's conclusions and beautiful illustrations seem to establish the possibility of transfrontal infection of the basal area of the brain at a very much earlier period that has been held to be likely or possible. His study shows conclusively that we have been wrong in putting the development of the sinuses at so late a period as has been believed.

Dr. Davis, closing: The point brought out by Dr. Coplin was illustrated in the lantern slides showing the stages of development at the various ages. Coronal sections of an 85-day embryo showed the primitive sinus sphenoidalis beginning as an evagination of the mucosa in the extreme posterior portion of the naso-pharynx and sagittal sections of a 137-day fetus showed its distinct projection into the posterior nasal capsule. Many cases in the series had died of nasal diphtheria and I was struck by the fact that the diphtheritic membrane in practically all cases completely filled the ethmoidal cells and in many cases partially filled the frontal, sphenoidal and maxillary sinuses.

PRINCIPLES OF SOCIAL SERVICE AND THEIR APPLICATION IN PRACTICE AT THE STATE TUBERCULOSIS DISPENSARY, PHILADELPHIA.

Dr. Albert P. Francine: Social Service Work is today an essential supplement to the medical service of hospitals which bids fair to become a factor quite as important as the hospital work itself. The Department of Health of Pennsylvania has set a standard of efficient and far-reaching Social Service Work in the operation of the State Dispensary for Tuberculosis. The system enables us to follow for years the patients discharged from sanatoria and to carry the principles of prevention into the homes. The coöperation between the dispensary and the dispensary nurse can hardly be over-emphasized in importance. The nurses are directed to consult personally with the district superintendents of the Society for Organizing Charity or other agencies about the needs of a case. The coöperation of these charitable organizations is worthy of all praise, yet it is only just and right since the medical care is given by the State. That a social worker should be also a trained nurse, I should say this is advisable only in so far as all education and training tend to develop character and ability. The very first thing we have to impress upon our own Social Service workers, who are all trained nurses, is to adopt the point of view of the social worker and submerge that of the trained nurse. What the physician wants is an intelligent account of the home conditions. Social Service shall be made a part of the training of nurses. The theory of social service is to help the patients to help themselves and we continually impress upon them their responsibilities. It is a well-recognized principle in our work to induce members of the patients' families to come to the dispensaries for examination and we insist that every member shall come and the work of the nurse is never considered complete until this is accomplished. If you expect to have the incipient case of tuberculosis voluntarily walk into the dispensary for examination you will be disappointed. They don't know they are sick and their friends don't know it. It should be remembered that at one stage of the advanced case the disease was curable. The fundamental principle of tuberculous dispensary work among the poor is first and foremost to get the case away to a sanatorium. It is not only unfair to the patient, but to his family to try to treat him in his home. No one can offer evidence to prove that among the indigent treatment at home can compare with sanatorium treatment either as to results or prevention. Personally I believe this applies almost equally to the well-to-do.

DISCUSSION.

Dr. A. B. Hirsh: I hope that Dr. Francine will put these facts before the people of the State as the problem is a sociologic one upon which the public needs much education. Regarding the overlapping of charitable work I believe the solution lies in a united effort between dispensaries and like institutions and an organization such as the Society for Organizing Charity.

Dr. James Tyson: Dr. Francine has struck the keynote in the treatment of tuberculosis by his insistence that the successful treatment of this disease must be in a sanatorium, and I confess to some surprise in hearing that there are still those who take a different view. In my experience the dispensary treatment of tuberculosis is not as much of a success as we would like to have it. I believe it ought to be followed up whenever possible with the aid of the social worker who can do more good in the home of the patient than the physician can in the dispensary.

Dr. C. L. Minor, Asheville, N. C.: The care of the dispensary cases of tuberculosis, I believe, is a problem for statesmen, sociologists and for the police more than for the doctor. The chief reason that the sanatorium fails—in so far as it does fail

—is that it is essentially a training school, and that in all schools there are some pupils who cannot, or will not, be taught. Those who come from the vicious poor of our slums prefer to be unhygienic. We can take the advanced case into the hospital and keep the patient there until he dies. We can take the intelligent poor into sanatoria and teach them, but what we are to do with the slum class, gentlemen, I do not know, unless we forcibly detain them in proper institutions.

DR. MORRIS J. LEWIS AND DR. WILLIAM J. TAYLOR read papers upon "The Treatment of Chronic Sciatica," reporting cases successfully treated by operation.

DR. ASTLEY P. C. ASHHURST: My own impression is not that the operative treatment of sciatica has fallen into "innocuous desuetude" on account of the surgeon, but that the physician has forgotten about it. A German surgeon named Pers has reported 47 operations for sciatica; and among 42 uncomplicated cases there were only three recurrences. He found that in most of his cases the adhesions were far up in the sciatic notch and that the operation was consequently more difficult than in exposing the sciatic in the upper part of the thigh. The great difficulty lies in the selection of the cases for operation. A great many cases called sciatica are simply instances of referred pain. In a patient seen last autumn thought to have sciatica I diagnosed Pott's disease. The man was subsequently admitted to Dr. Lewis' ward in the Orthopedic Hospital for some lung condition and later died from tuberculous meningitis. Another patient recently in Dr. Harte's service at the Orthopedic Hospital, presented the typical deformity seen in sciatica with pain along the sciatic nerve. We made a diagnosis of sacro-iliac sprain and after the application of a plaster jacket the man got well. I wish the physicians would tell us the cause of the adhesions found around the sciatic; whether they are due to infection or to trauma. It is rather unsatisfactory to operate for the relief of lesions of whose pathogenesis we have no idea.

DR. JOHN B. ROBERTS: I think the authors of these papers are right in saying that we, who are surgeons, and those, who are medical men, do not frequently enough subject cases of chronic neuralgia of any nerve to surgical treatment. If we do not know the cause of pain along nerve trunks we should look for it even if it is necessary to make an incision to find out.

DR. A. B. HIRSH: I recall the detailed report of a series of cases in which sciatica was directly connected with constipation and in which correction of the intestinal condition cured the symptoms. An effective non-operative method of treating sciatica, particularly that variety which the speakers believe needs surgical treatment,—perineuritis with adhesions between the nerve and its sheath, is the use of the wave current, the high voltage, low amperage, static current evolved by William J. Morton and elaborated by William Benham Snow. In an acute case a week to ten days of daily applications will remove the exudate. Men in Philadelphia and other cities have been using the plan to the exclusion of operation for a number of years. Their reticence as to its efficacy is due to the desire to collect a large number of cases before the method is made more widely known.

SOUTH BOSTON MEDICAL SOCIETY.

The South Boston Medical Society held its annual dinner at the Boston City Club, at 7 P. M., May 19, with DR. WM. H. RUDDICK in the chair. Paper was read by DR. H. D. ARNOLD BLETT. Subject:

CARDIO-RENAL DISEASES.

Paper discussed by: DR. GEO. G. SEARS, DR. JOHN T. BOTTOMLEY, DR. F. T. LORD, DR. E. E. SOUTHARD, DR. WM. H. DEVINE, DR. E. S. BOLAND, DR. H. J. KEEN, DR. E. T. TRACEY and others.

The following Resolutions were adopted by the society:

DR. PATRICK P. TIMMINS who died May 5, was a practitioner of medicine in South Boston for more than 30 years.

He was a member of this society since its organization in 1905, having served as its president in 1908 and 1909.

His kind and gentle nature, his marked ability in his chosen profession, gave him a warm place in the hearts of his patients; this was manifested in a marked degree by their solicitude during his last illness.

He was an eloquent patriot of the land of his birth, and a loyal zealous citizen of his adopted country.

We honor him as a member of our profession, as a representative of our society, and as a patriot.

Resolved: That this expression of our esteem for him, and our appreciation of his many noble qualities, be placed on the records of our association, and a copy forwarded to the family of Dr. Timmins.

WILLIAM H. DEVINE, M.D.,
E. S. BOLAND, M.D.,
R. N. DALEY, M.D.,
Committee on Resolutions.

Book Reviews.

A Reference Hand-Book for Nurses. By AMANDA K. BECK. Third edition; revised. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this convenient little manual was reviewed in the issue of the JOURNAL for July 6, 1905 (Vol. cliii, p. 27). The changes in this third edition consist in the addition of a number of new formulae and simplified methods, the elimination of some tables the use of which has been largely superseded, and the insertion of considerable fresh material, such as the technic and indications for baths, and lists of the instruments needed for various surgical operations. The book should maintain its obvious usefulness for nurses and for physicians interested in the practical details of nursing.

A Collection of Papers. Published previous to 1909. By William J. Mayo and Charles H. Mayo. Two volumes. W. B. Saunders Company. 1912.

Collected Papers by the Staff of St. Mary's Hospital. Mayo Clinic, Rochester, Minn., 1911. W. B. Saunders Company. 1912.

It is a moderate statement that a thoroughly satisfactory review of the best medical works is either impracticable or impossible within the usual limits. This is particularly true of the volumes issued during the past year from the clinic of the Mayos in Rochester. We are here directly concerned with three volumes, two of them dealing with early papers published before 1909 by William and Charles Mayo only, and the third being the volume of Collected Papers by the staff of St. Mary's Hospital for 1911, a staff which now comprises no less than 23 well known men, and the editor of the year books, Mr. Niellish.

The two volumes containing the papers published previous to 1909 are of interest, not only for the information which they contain, but also because, as the editor says in the foreword, "They mark points in the development of the work of the Doctors Mayo and also record interesting historic events in the progress of general surgery from the date of the earliest papers, written in 1884, to the present time." This period, of course, corresponds with the era of great surgical advances made possible by Lister's demonstrations of the principles of antisepsis, and the volumes, therefore, make an admirable index of the character of these great advances, illustrated by extraordinary surgeons, placed in almost ideal conditions, and unhampered by tradition.

These two volumes contain 150 papers, upon the widest possible variety of subjects, including mastoid and sinus operations. The sequence of chapters is the same anatomical classification as that followed in the volumes of more recent papers. The first of the two volumes contains photographs of the Mayos, at the time of graduation and at the present time, interesting witnesses of the kindly touch of nearly 30 passing years, and sufficient proof that hard work alone is not an enemy to good health.

The 1911 volume comprises 55 papers, including a brief "In Memoriam" of William Worrell Mayo, who was the first of the family to come (in 1845) to this country. He was born in 1819, near Manchester, England, and died at the age of 90, in Rochester, where he had lived since 1863. It will be a surprise to many who have forgotten how recent is the conquest of the West to read that he "was surgeon with the band of settlers who checked the advance of the Sioux Indians at New Ulm, Minn.," after they had massacred the whites, in 1862.

Almost two-thirds of the 55 papers, and much more than this proportion of the pages of the volume are written by the members of the staff other than the Mayos themselves. Many of the longest monographs are from the hands of the youngest men. The familiar order of subjects is followed: Alimentary Canal Hernia, Genitourinary, Ductless Glands, Thorax and Extremities, Technic and General Papers. The illustrations are very numerous and most excellent. The papers without exception deserve careful reading; they cannot be satisfactorily outlined. Indeed this fact suggests the one element which might with advantage be added to these volumes—it is that each writer should summarize his conclusions at the end of his paper, so that the busy surgeon may get the substance of the work, and perhaps later examine the methods by which these conclusions are reached. A few of the papers include such conclusions, and it is to be hoped that in the future it will become a routine feature of the volumes.

The books demonstrate that a hospital, entirely apart from a medical school, may be made, by able and energetic men, both a research laboratory and a technical workshop for the benefit of the general surgeons all over the country.

The Internal Secretory Organs: Their Physiology and Pathology. By Prof. Dr. Artur Biedl, Vienna. With introductory Preface by Leonard Williams, M.D., M.R.C.P., Physician to the French Hospital, etc. Translated by Linda Forster. New York: William Wood and Company. 1913.

It is not to be questioned that one of the most important fields of research both for practical and theoretical medicine in the immediate future will be a study of the internal secretions. Much experimental work has already been done, but hardly more than enough to demonstrate the necessity of more far-reaching investigation in the future. This volume, well translated by Linda Forster, brings our knowledge of the subject adequately up to this time. The subject matter, as might be anticipated from the title of the book, concerns itself, after a brief general statement, with the thyroid apparatus, the thymus gland, the suprarenal system, the hypophysis, the pineal body, the generative glands, the pancreas, and also with certain matters concerning gastric and renal secretions. Admirable as the text is, to students of the subject the list of literature appended will be of even greater value. Of this there are about 150 pages of references printed in small type. Such a book needs no commendation. It stands as a monumental contribution to an exceedingly difficult and involved subject.

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WORK OF COMMITTEE FOR PUBLIC HEALTH AMONG WOMEN.

IN Massachusetts, during the past four years a movement has been slowly growing, called the Committee for Public Health Among Women of the American Medical Association. This committee is in connection with a nation-wide movement, sanctioned by the House of Delegates, who appointed the first chairman, Dr. Rosalie Slaughter Morton of New York City. It came into being because of the very valuable work that women, medical and non-medical, were doing in municipal work and in prevention of tuberculosis. It seemed wise, therefore, to give the women of the American Medical Association an opportunity to see what they could do by themselves, and this committee was formed.

After her appointment, Dr. Morton immediately began a movement for organization of women physicians throughout the country. Various states that were naturally grouped together were put in the charge of chairmen, and these chairmen were given the name of the Central Committee. The next sub-division was the appointment of a secretary for each state, then a secretary for each county in the state, and another for each large city, as, for example, Boston.

Each of these physicians upon accepting the office was pledged to do all she could to stimulate interest in the work, and to help as far as possible, in pushing forward the cause of preventive medicine.

The object was not to start independent lines, as much as to work with already formed organizations. To this end the members of the committee have endeavored to forward the work of various societies already established for the improvement of the health of the public, and to help wherever possible where women felt the need and desire for more information relating to health and hygiene.

The work was taken up with great enthusiasm, and in the four years since it was started has grown steadily, the amount done in Massachusetts this past winter being double that of two years ago. The subjects are various. The society desiring a lecture or talk is requested to write to the city or state secretary, as the case may be, stating the need, the class of people to be reached, time, etc.

In Massachusetts there have been 132 lectures given to 10,968 people, representing 49 different organizations, while in Boston, despite the fact that so many other courses of lectures are being given, about half of this number were reached. This fact is felt by the committee as being less desirable, as there is undoubtedly greater need for knowledge on these important topics in many places where information is less easily reached, and attempts are constantly being made with a view of spreading the gospel of better health in the country districts. The work is entirely gratuitous, the lecturers and workers having this year even paid expenses for stamps and printing themselves. These talks have been invariably well received and listened to earnestly and attentively. Often many questions were asked and deep interest shown by the girls and women addressed. Many were not formal lectures but were given as talks, sometimes the arrangement being simply that the girls or women were to ask questions freely, to be answered by the physician. Several men physicians have also given talks to large groups of women, such as the Boston Municipal League.

It is certain that an immense amount of interest in good health has been fostered. Requests are constantly being received for the furtherance of this work next year. It can hardly be doubted that the people believe in it and find that the talks are of real value to them, in the struggle for better understanding of the ways of right living.

The excellent work which this organization, fostered by women physicians, has been doing is not so widely recognized as its significance warrants. One reason for this, possibly, is the fact

that the work has gone on quietly without undue advertisement and also largely without the co-operation of physicians in general. The time has doubtless come when more could be accomplished through combined efforts on the part of both men and women interested in the problems of public health. In these matters of public concern the question of sex is becoming less and less conspicuous and it is evident that the more completely and harmoniously physicians of the two sexes work together the more definite and far-reaching will be the results. It is to be hoped, therefore, if this work on the part of women in public health education is to be continued and grow more effective that their efforts may be more widely known and recognized and a more cordial coöperation be secured.

THE MEANEY BILL.

There is before the present legislature the so-called "Meaney Bill," House Bill No. 2416, entitled "An act to require the labeling of receptacles containing pasteurized milk and milk produced outside of the Commonwealth."

Although this bill would seem to have merit in at least two respects as regards the quality of milk furnished to the citizens of the Commonwealth, this merit is apparent and not real. Entirely aside from the fact that this bill would place upon the dealers in milk a severe handicap through its requirement that special labels be placed upon a large proportion of the milk drunk in Massachusetts, this bill is based upon several misconceptions as to what may or may not be considered proper milk. One main contention is, of course, that milk produced outside of the Commonwealth is older and less clean than that produced within and, therefore, of a quality inferior to Massachusetts milk. This does not by any means follow, however. In the first place, it has not been proved that the dairies outside of Massachusetts are to any appreciable extent less sanitary than those of Massachusetts. In the second place, the mere fact that milk comes form a nearby source does not necessarily ensure a correspondingly excellent quality. It may be said without fear of contradiction that milk properly produced and handled, coming from the northern part of New York State, might very well be of better quality, even though seventy-two or ninety-six hours old, than that coming from an infected or badly conducted dairy within thirty miles of Boston and but twelve hours old. Witness our recent typhoid and tonsillitis epidemics from milk produced at our very doors!

Then, too, supposing one lived in Boston, must the milk which comes from just over the line in New Hampshire and produced 24 hours previouly suffer equally with milk from northern New York State the opprobrium of being labeled as out-of-State milk? In other words, it is not the distance which milk travels, nor the length of time necessarily which elapses subsequent to its production that is important; it is the manner of production and the care in transportation or handling that counts, and these being proper, there is no reason why out-of-State milk should not be exactly as healthful as that produced in the State of Massachusetts. Indeed, it might be more healthful.

As regards pasteurization, there is no doubt that this process is used on occasion to make marketable milk which otherwise would be unsalable, and if all pasteurized milk were of such a character a label indicating pasteurization might be of service to the consuming public.

Public health officials, however, are coming more and more to believe that pasteurization of all milk is desirable and that it is to be the final solution of our ills as far as epidemics due to contaminated milk are concerned, and every effort should be made to combat the idea that pasteurized milk is necessarily an inferior milk. It is in many instances highly superior. One fact, however, is insisted upon by all experts on milk questions, and that is that pasteurization is a process which must in the final analysis be sharply defined and closely supervised, preferably under municipal or State control.

In this connection we would point out the fact that there is no indication in the bill under discussion as to what "pasteurized milk" shall necessarily mean. Shall it mean a temperature of 150° F. for half an hour, as it properly should mean; or shall it mean a temperature of 170° F. for five minutes; or shall it mean, as has been stated in some milk regulations, the exposure of milk to any degree whatever of artificial heat?

All of these considerations must be borne in mind by the Legislature if they would avoid making one more great blunder in their treatment of the milk question. They have erred already in rejecting the only good bill before

them—the "Ellis Bill." They cannot compensate for this error by enacting into law House Bill No. 2416, which will simply impose great hardship upon the milk dealer, with a necessarily increased price in all probability to the consumer, without in any way improving the character of the milk supply or the health of the persons who consume that milk supply.

THE PREVENTIVE VALUE OF PASTEURIZATION.

ONE would think that with all the agitation we have had of late years on the milk question that epidemics caused by milk would be on the decrease. As a matter of fact, they are on the increase. It was only three years ago that Boston was startled by an epidemic of scarlet fever, with 800 cases, and two years ago this month we had an epidemic of tonsillitis, with over 1000 cases. Shortly after this epidemic in Boston, Chicago had a similar experience, and then Baltimore had a serious sore-throat epidemic. Within five months Greater Boston has had five milk-borne disease epidemics, four of typhoid and one of tonsillitis, this being the second sore-throat epidemic in two years.

It is a matter of record in all of these epidemics that they were caused by raw milk or by improperly pasteurized milk, and as soon as the Board of Health ordered the milk perfectly pasteurized the epidemics at once ceased. No amount of inspection can prevent these epidemics, and the milk inspector of Boston once made the statement that if a physician was placed on every farm supplying Boston with milk, that even then one could not guarantee that the milk would be safe.

The solution of the problem lies in pasteurization, not only under official surveillance, but in the final container, or by some other method that would ensure that all the milk be heated to the required temperature for the requisite period of time. The only sure method of safeguarding milk consists in heating it to a temperature of 145 degrees and holding it at that temperature for thirty minutes. Today the great cities of Chicago and New York have established regulations requiring the pasteurization of milk, the United States Government has made it compulsory for government employees in Washington to use either an extremely high grade raw milk or pasteurized milk, and very recently the seventeen milk experts of America meeting in joint convention as the National Commission on Milk Standards voted that all milk should be pasteurized by heating at 145 degrees for thirty minutes.

It is now an established fact that at least five diseases may be transmitted by milk: typhoid fever, diphtheria, scarlet fever, sore throat and tuberculosis in children. It is also well known that there have been epidemics of these diseases caused by raw milk or by improperly pasteurized milk, but there is no record of an epidemic of disease traced to milk that has been heated to a temperature of 145 degrees for thirty minutes.

The inspection of dairy farms by efficient inspectors will clean up the premises where the milk is produced and give us clean milk; the analysis of milk in the laboratory will detect adulteration and prevent fraud; but no amount of inspection and no amount of analyzing will always prevent dangerous bacteria from getting into milk. An efficient system of pasteurization will safeguard the public health, and as proof of this statement it is only necessary to mention the fact that whenever an epidemic has been caused by milk the board of health has immediately ordered the milk pasteurized.

MEDICAL NOTES.

ANNOUNCEMENT OF DARTMOUTH MEDICAL SCHOOL.—The following recent announcement of the Dartmouth Medical School is of significance as affecting the conditions of medical education in New England, and as bearing on the inevitable relations between medical instruction and the hospital clinics which are available only in large cities:—

"The trustees of Dartmouth College have voted, after the year 1914, to suspend for the present, instruction in the last two or clinical years of the Medical School and to concentrate the resources of the school upon the first two years in medicine. Students thus trained will be well qualified to enter the third year of the courses offered by the best city medical schools and may there complete their clinical preparation for the degree of doctor of medicine. The reason given by the trustees for this action is that because of its location the school has found difficulty in meeting satisfactorily the steadily advancing requirements set by the medical profession for a larger supply and variety of clinical material for purposes of instruction."

American Association for Promoting Hygiene and Public Baths.—This Association met in the City Hall Annex No. 2 in Baltimore on the 13th, 14th and 15th of May. Papers and discussions were participated in by members and delegates from Eastern, Western and Southern cities. Dr. Simon Baruch, the president, delivered an address at McCoy Hall, Johns Hopkins University, also Prof. William H. Welch of Johns Hopkins and Dr. S. R. Fulton, secretary of the Maryland State Board of Health.

The officers of the Association, elected for 1914, are: Dr. Simon Baruch, New York, president, re-elected; Rev. Mr. Thomas M. Beadenkoff, Baltimore, vice-president; Dr. J. Leonard Mason, Newark, secretary. The place of meeting for next year is Newark, N. J.

Centralization of Public Health Administration in Switzerland.—Report from Berne, Switzerland, on May 17, states that a federal referendum, recently held, has authorized a revision of certain articles of the constitution which define the powers of the central government in matters of health administration.

"The effect of this revision will be to enable the government, and not the cantons, to deal with especially dangerous, widespread, or malignant diseases of men and animals. The measure is aimed especially at tuberculosis, but also at cancer, goitre, puerperal fever and feeble-mindedness, such as wholly to incapacitate a person from earning a living even by mechanical work. Tuberculosis is responsible for about one-seventh of the deaths annually occurring in Switzerland. The mortality from cancer, according to the Swiss medical profession, is higher than in any other country on whose mortality statistics reliance can be placed."

This action is evidence of a tendency to vest the power of supervising public health in federal rather than in local authorities.

Opening of a New French Hospital.—Report from Aix-les-Bains, France, states that on May 15 the new Leon Blanc Hospital, presented to that city by the late J. Pierpont Morgan, was formally opened by the local mayor in the presence of representatives of the French Government, of the Red Cross Society, and of various medical organizations.

Antityphoid Inoculation in the French Army.—In January, 1912, voluntary antityphoid vaccination was first established in the French Army. Since that time 62,788 men have been inoculated, with the same strikingly beneficial results that have attended this procedure in other countries.

"Official statistics show that in France no case of typhoid fever has occurred among the soldiers vaccinated, who, on Dec. 31, numbered 37,140. On the same day only one case was reported among the 13,290 vaccinated men in Algiers-Tunis; that was in a soldier who had come from Morocco. In Morocco the results were as follows: In Eastern Morocco the morbidity and mortality were *nil*, whereas among the non-vaccinated the morbidity was 38.23 and the mortality 5.51 per 1,000. In Western Morocco the morbidity among the vaccinated was 2.96 and the mortality 0.09 per 1000, whereas among the non-vaccinated the morbidity was 168.75 and the mortality 21.29 per 1000. Taking the average typhoid statistics for the whole army it is estimated that antityphoid vaccination has, among the 62,788 men treated, prevented 2,101 cases of disease and 266 deaths during the year 1912."

Bequest to a St. Louis Hospital.—The death in Paris on May 9 of Mary Carter Gregory releases a bequest, in the will of her late brother, Charles R. Gregory, of $10,000 to St. Luke's Hospital, St. Louis, Mo.

A New Institute of Medical Research.—Report from Berkeley, Cal., on May 14, announces that Mrs. George William Hooper, of San Francisco, has transferred to the University of California the sum of $1,000,000 for the establishment of an institute of medical research in memory of her late husband.

"The foundation is to be controlled by an advisory board of seven members constituted as follows: The president of the Carnegie Foundation, who is now Dr. Pritchett; the professor of pathology at Johns Hopkins University, the director of the Rockefeller Institute for Medical Research, the president of the University of California, the dean of the Medical School of the University of California, E. D. Connolly, representing Mrs. Hooper, and a seventh member to be chosen by the Western members of the advisory board."

Tuberculosis Appropriations in California.—Report from Sacramento, Cal., states that on May 9 the State Assembly passed bills appropriating $20,000 for the maintenance of a State department of tuberculosis, $2000 for the treatment of residents with the disease, and $5000 for the dissemination of knowledge as to the best means of preventing its spread.

BOSTON AND NEW ENGLAND.

Massachusetts College of Pharmacy.—At the forty-fifth annual commencement exercises of the Massachusetts College of Pharmacy, held in Boston recently, the degree of doctor of pharmacy was conferred on 35, and that of pharmaceutical chemist on 8, candidates.

Boston City Hospital Training School.—The annual graduating exercises of the Boston City Hospital training school were held on Friday of last week, May 23. Diplomas were conferred on 24 pupil candidates. The principal address was by Miss Mary M. Riddle.

Children's Hospital Training School.—The annual graduating exercises of the Children's Hospital Training School are to be held in Boston on Thursday evening of this week, May 29.

Lecture by Dr. Coley.—On Thursday afternoon of this week, May 29, Dr. William B. Coley, of New York, will deliver at the Harvard Medical School, under the auspices of the Alpha Omega Alpha Fraternity, an illustrated lecture on "Some Aspects of the Cancer Problem."

Milk and Baby Hygiene Association.—The recently published fourth annual report of the Boston Milk and Baby Hygiene Association records the work of that organization for the past season. During the year 1912, over 3000 babies were cared for, and 9 milk stations were maintained. For the current year $2000 are needed to continue these stations, $2000 to open new stations in Roxbury and Dorchester, and $3000 for the salaries of additional temporary nurses at each station during the months from June to October.

Report of Fitchburg Board of Health.—The recently published twenty-third annual report of the Board of Health of the City of Fitchburg, Mass., chronicles the activities of that body for the calendar year 1912. During this period the total death-rate was 12.87 per 1000 living, that of infants under one year was 104.6 per 1000 births. Thorough physical examination of all school-children was made by the school physicians, and 49 tuberculous patients were aided by the Board. The reports of the school nurse, and of the inspectors of milk, plumbing and meats are appended.

Needs of North Shore Babies' Hospital.—The work and needs of the North Shore Babies' Hospital are described, as follows in part, in a recent letter to the daily press:—

"It is not sufficiently well known that an excellent place is now provided where small children of Essex County who are taken sick in the heat of the summer can be taken and receive the best medical treatment. This place is the North Shore Babies' Hospital. Originally started by several persons in the town of Peabody who saw the necessity of such an institution, it was at first located on Baker Island in Salem harbor, and for two or three years good work was done there. The cool, pure sea air there is of the best and gave some advantages which the Floating Hospital of Boston has given the small children of Boston in its sails down Boston harbor.

"It became clear after a while, however, that the difficulty of reaching the island was too great, and another place must be secured. By this time persons in Salem, Beverly, Danvers and a few in Lynn had become interested. A careful search for the best place was made all along the North Shore in Beverly, Salem, Marblehead, Swampscott and Lynn. Finally an ideal spot was secured in the Ropes estate, consisting of a fine mansion and several acres of improved land on tide water, with a good beach, in North Salem. The mansion was entirely remodelled and fitted for hospital uses and is opened for patients during the three or four warm months of the year.

"Everyone should bear in mind that such a place is provided and the hospital deserves a more general and hearty support, which it will no doubt receive when the matter is called to their attention."

Work of the Boston Dispensary.—The current issue of the *Boston Dispensary Quarterly*, published last week, shows that during the quarter ended March 31, 1913, 30,624 visits were made by patients at the various clinics of the Dispensary, an increase of 4419 over the corresponding period last year. It is announced that hereafter the recently established evening ophthalmologic clinic shall be held twice each week, instead of once as at first.

Recent Hospital Bequests.—The will of the late Josiah Oakes, of Malden, Mass., which was filed on May 12 in the registry of probate at East Cambridge, Mass., leaves an estate of $260,000 in trust to his daughter, but provides that in the event of her death, without issue, after 15 years, the sum of $10,000 shall be given to the Malden Hospital for the establishment of a free bed, $10,000 to the proper persons to be used for

the suppression of tuberculosis in Malden, the residue to be divided equally between the Massachusetts General Hospital, Boston, the Carney Hospital, South Boston, and the Free Hospital for Women, Brookline.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending May 20, 1913: Diphtheria, 48, of which 4 were non-residents; scarlatina, 47, of which 9 were non-residents; typhoid fever, 1; measles, 146, of which 1 was non-resident; tuberculosis, 86, of which 2 were non-residents. The death-rate of the reported deaths for the week was 16.66.

NEW YORK.

Workmen's Compensation.—Governor Sulzer has vetoed the Foley-Walker workmen's compensation bill, passed at the recent session of the Legislature, which was condemned by some of the labor organizations on the ground that it permitted the insurance of the compensation fund by casualty companies. The system established in the bill was the same, however, as that in Massachusetts, and the act was approved by many officers of trade unions, as well as a large number of employers.

A New Chief at Ellis Island.—Dr. L. L. Williams of the United States Public Health Service, who for the last few months has, with the permission of the government, been acting in an advisory capacity in connection with a New York municipal committee of investigation, has just been detailed as chief medical officer at the immigrant station on Ellis Island.

New Appointees at Hoffman and Swinburne Islands.—Dr. C. F. Clark, chief medical officer of the hospitals on Hoffman Island, and Dr. C. S. Hudson, chief medical officer of the contagious station on Swinburne Island, having been promoted to positions as deputy health officers, Health Officer O'Connell has appointed to their places Dr. J. R. Hicks of New Brighton, Staten Island, formerly of the army, and Dr. A. A. Mendez of Brooklyn.

Work of Russell Sage Foundation.—A commission of the department of surveys and exhibits of the Russell Sage Foundation has been making an investigation of the economic and health conditions of the city of Newburgh, on the Hudson, and at a large meeting of the citizens, held May 16, presented its report. It was anticipated that there might possibly be a hostile demonstration on this occasion, as the report reflected rather severely on some of the city officials, but no dissatisfaction was expressed. The school board was especially criticized by the commission, as the investigation showed that the public school buildings were badly lighted and ventilated and that no attention was paid to the physical condition of the pupils.

Typhoid Fever at Catskill.—While New York City is looking forward to the early increase of its water supply by the completion of the great Catskill system, the State Board of Health comes out with a report to the effect that typhoid fever, from contaminated drinking water, has for some time been unusually prevalent in the village of Catskill. As a matter of fact, however, Catskill village is remote from and has no connection whatever with the watershed of the Esopus (the source of the supply for New York), which is among the lofty mountains of the western Catskills. The trouble with the drinking water of the village in question is that it is pumped up directly from the Hudson River, which is polluted with the sewage not only from the cities of Cohoes, Watervliet, Rensselaer, Troy, Albany, and Hudson and of many smaller places on the Hudson, but also with that of many populous places along the Mohawk, which empties into the Hudson. The State Health Department has found that the results of repeated analyses justify the conclusion that this public water supply, even after settlement, shows clearly the typical pollution of the lower Hudson River. Thus, the total number of bacteria per c.c. is excessively high for a potable water, while organisms of the colon bacillus type were isolated in nearly all test volumes as small as one c.c., and repeatedly in volumes as small as 1-10 c.c. As a result of its investigation the department has urged upon the local authorities the following recommendations: 1. To take immediate steps for the construction of works to purify the present water supply or to develop a new, adequate and safe supply from Potuck creek or other suitable source. 2. Pending the permanent improvement of the supply, to establish a temporary and inexpensive plant for the chlorination of the present raw river water, under the direction of a sanitary expert, in order

to reduce to a minimum the danger of water-borne infection.

Recent Hospital Bequests.—By the will of the late Hugh D. Auchincloss, a bequest of $7,500 is made to the Presbyterian Hospital of New York.

The late Charles Schoolhouse of New York, shortly before his death, which occurred on May 7, requested that certain gifts should be made to charitable objects which were not mentioned in his will, and his son and executor has announced his intention to carry out this wish. Among these oral bequests are $1,000 each to Mount Sinai Hospital, the Montefiore Home and Hospital for Chronic Invalids, the German Hospital and Dispensary, the New York Skin and Cancer Hospital, the New York Society for the Relief of the Ruptured and Crippled, and the Blythedale Home for Tuberculous Children.

Civic Street Parade.—Hitherto the police and the street cleaning departments have had their annual spring parades on different days, but this year the municipal authorities determined to have not only these two, but every other department of the city government combine in one grand civic street parade, to be reviewed by the mayor and other officials. May 17 was fixed upon as the date for this, and on that day the event came off with great éclat. There were, in all, 23 divisions, most of which had with them floats of various kinds, and there were some 12,000 marchers and 560 vehicles in line. In the dock and ferry department division was the corps of lifesavers, many of them decorated for heroic deeds, assigned to the recreation piers in summer, and the fire department division was accompanied by 90 men, women and children who had been rescued from impending death in fires. One of the floats displayed by the charities department represented the operating amphitheatre of the Kings County Hospital, Brooklyn, with the figure of a patient on the table and surgeons, nurses and orderlies performing their appropriate functions; while in a large decorated car rode a smiling bevy of nurses from the training school of the City Hospital, Blackwell's Island. The health department had no less than 20 floats. On one of these was a large tombstone, representing the annual death-rate in 1868, 27.90, and beside it a small tombstone representing the 14.12 rate in 1912; and another float carried a huge hypodermic syringe, with statistics inscribed on it, illustrating the successful use of diphtheria antitoxin. Altogether, the parade was a most impressive demonstration and one, in point of novelty, organization and variety, such as New York had never seen before.

This World's Hugest.—On the basis of the last census, and of immigration, birth, and death-rates since that time, it was estimated by the Health Department of May 19 that on July 1, 1913, New York will become the largest city in the world, with a total of 5,372,983 inhabitants. Of its present white population, 45.4% is foreign-born, 15.4% native-born of native parentage, and 38.8% native-born of foreign parentage.

Current Literature.

Medical Record.

May 10, 1913.

1. Bryant, J. D. *Consultations Without Scars.*
2. Thompson, W. G. *Osteitis Deformans (Paget's Disease).*
3. *Dana, C. L., Berkeley, W. N., Goddard, H. H., and Cornell, W. S. *The Functions of the Pineal Gland. With Report of Feeding Experiments.*
4. Nammack, C. E. *Salvarsan in Cryptogenetic Pernicious Anemia.*
5. Rolph, F. W. *The Dissolved Albumin Test for Gastric Cancer.*
6. Griffin, E. A. *Cryptic Polypus in the Nasal Pharynx of a Child.*
7. Tousey, S. *Case of Exophthalmic Goiter Cured by X-ray.*

3. Dana and Berkeley discuss their observations on the functions of the pineal gland, and Goddard and Cornell report on numerous clinical and animal experiments. From their series of fifty or more cases they are inclined to believe that pineal medication is sometimes of value in children whose mental development is retarded. Just how the gland produces mental improvement is unknown. Possibly the secretion of the gland acts as a ferment, facilitating exchange of nutrient material in the brain cells. In cases of total idiocy, the writers found the gland useless. [L. D. C.]

New York Medical Journal.

May 10, 1913.

1. Stoner, G. W. *Insane and Mentally Defective Aliens Arriving at the Port of New York.*
2. *Cole, L. G. *Preliminary Report on the Diagnosis of Postpyloric (Duodenal) Ulcer by Means of Serial Radiography.*
3. Brauth, J. H. *High Tension, High Frequency Currents.*
4. Wyeth, G. A. *What the Practitioner Should Know of the Wassermann Reaction.*
5. Dynan, N. J. *Psychogenic Psychosis.*

6. Hartshorne, I. *Eye Strain Symptoms in General Practice.*
7. Grushlaw, I. *Indications for Operation on the Inferior and Middle Turbinates and Septum.*
8. Frescoln, L. D. *Hospital Prophylaxis.*
9. Funke, J. *Carcinoma of a Hyperplastic Hypophysis.*
10. Milne, L. S. *Tuberculosis of the Liver with Jaundice.*
11. Doroff, L. A. *The Duodenal Tube.*
12. Levyn, L. *Biostatistics of the Jewish Race.*

2. Cole presents a preliminary report on the diagnosis of duodenal ulcer by means of serial radiography. The method depends on recognizing the actual deformity of the gut, caused by the induration or cicatricial contraction surrounding an ulcer. By means of serial radiography it is possible to reveal all of the usual pathological findings of duodenal ulcer. [L. D. C.]

The Journal of the American Medical Association.

May 17, 1913.

1. Cannon, W. B. *Antivivisection Legislation; Its History, Aims and Menace.*
2. Reed, A. C. *Vertigo.*
3. Watters, W. H. *A New Differential Leucocyte Count Chart.*
4. *Levy, R. *Laryngeal Tuberculosis.*
5. Leale, M. *Thrombophlebitis of the External Iliac Vein.*
6. Wiener, J. *Skin-Grafting Without Dressings.*
7. Creel, R. H. *Plague Eradication in Porto Rico.*
8. Torek, F. *The First Successful Resection of the Thoracic Portion of the Esophagus for Carcinoma. A Preliminary Report.*
9. Wetherill, H. G. *Successful Transplantation of Graft Without Periosteum.*
10. Furniss, H. D. *Impacted Ureteral Calculi Released by Fulguration.*
11. Singley, J. D. *Bursting Rupture of the Stomach of Extraordinary Extent.*
12. Soper, A. C., Jr. *A New Bottle-Holder for Feeding Babies.*
13. Skillern, P. G. *Cases Illustrative of (1) Fracture of Carpal Scaphoid with Luxation of Semilunar, (2) Fracture of Carpal Scaphoid with Palpable Deformity.*
14. Pusey, B. *A Sclerocorneal Trephine.*
15. Graham, H. F. *Shelf for Rectal and Vaginal Operations.*
16. Bendell, J. L. *Longitudinal Fissured Fracture of the Lower End of the Radius.*
17. Olsho, S. L. *A Diagram for Teaching the Varieties of Regular Astigmatism.*

4. Levy points out that recent statistics show that tuberculous laryngitis exists in 50 per cent. of those who die of tuberculosis. It is rare in children under 12 years of age. Among the earliest of signs is intermittent hoarseness. It has been found that the lesion, in the majority of cases is on the same scale as the lung affection. Another early symptom is excessive sensitiveness and irritability of the pharynx. Pain is of uncertain significance. Diagnosis in the absence of cough and sputum can sometimes be made by rubbing the suspected larynx with a pledget of cotton, and subjecting this to bacteriologic examination. Curability depends largely on early diagnosis. Tuberculin is of value in only a limited number of cases. [E. H. R.]

Archives of Internal Medicine.

April, 1913.

1. Stewart, G. N., and Laffer, W. B. *A Study of Vasomotor Reflexes Elicited by Heat and Cold from Regions Devoid of Temperature Sensibility (in an Unusual Case of Post-Typhoidal Neuritis.)*
2. Stewart, G. N., and Walker, O. C. *Vasomotor Reflexes Elicited by Heat and Cold from Areas Deprived of Temperature Sensibility by a Traumatic Lesion.*
3. Neilson, C. H., and Bounot, E. *A Method for the Quantitative Determination of Pepsin by Using a Colloidal Suspension of Egg Albumin.*
4. *Bass, M. H., and Wessler, H. *Heart Size and Heart Function in Children, Showing Orthostatic Albuminuria: An Orthodiagraphic Study.*
5. *Marvin, D. *A Preliminary Report on the Effect of Strychnine and Digitalis on Man.*
6. Orie, E. L. *Human Botryomycosis of the Liver.*
7. Bailey, C. H. *A Case of Foreign Body in the Heart.*
8. *Pollock, L. J., and Treadway, W. L. *A Study of Respiration and Circulation in Epilepsy.*
9. *Neuman, L., and Behrend, E. B. *A Modification of Russo's Urinary Typhoid Fever Test, with a Report of Its Use in One Thousand Cases, and a Complete Bibliography.*

4. Bass and Wessler made an orthodiagraphic study of orthostatic albuminuria at the pediatric clinic of the Mount Sinai Hospital in New York, examining especially the relationship of this condition to the cardiovascular system. In their series of cases selected at random they found relative cardiovascular insufficiency fairly common. Hypertrophy and dilatation were rare, but a considerable number of the hearts failed to become smaller after exercise, indicating insufficient contraction. A tendency of the pulse to become smaller (sometimes impalpable) after exercise was very common among the children examined. In 30% of the cases hearts of the vertical or drop type (described by Kraus) were found.

5. Marvin reports results of experiments on the effect of strychnine and digitalis on man. His material consisted of groups of medical students at the University of Vermont. He found that strychnia had practically no effect on the rate of respiration, but a constant effect in slowing the pulse rate. There was marked increase in blood-pressure after doses of gr. 1-30 or more. With digitalis the writer observed no effect on the rate of respiration. The pulse-rate was slowed eight beats per minute by a dose of 14 minims of standard tincture. Increase in blood-pressure was marked, the maximum being reached in five hours and the pressure gradually falling to normal in fifty hours.

8. Pollock and Treadway made a clinical study of respiration and circulation in epilepsy. They find that there are present in many cases rhythmical variations of blood-pressure other than those due to respiratory movements. Before a convulsion there is a preliminary rise in blood-pressure followed by a sudden drop and then (just before the convulsion) a period of apnea. During the convulsion the pulse is rapid and the blood-pressure relatively low. The changes in the respiratory and circulatory systems observed by the writers in some of their cases suggest that the site of discharge is in the medulla and pons.

9. Neuman and Behrend write an exhaustive paper on Russo's urinary typhoid fever test, making a complete review of the literature and offering a modification of the test with report of results obtained with it in one thousand cases. The writers preface their remarks by saying that this methylene-blue test is only a corroborative test and not intended to replace the blood culture or the Widal. The modified technic of the Russo test suggested by the writers is as follows: Make an aqueous solution of methylene blue of such concentration that, when thoroughly mixed, it will just be translucent. In an ordinary test tube put enough of this solution to fill the bowl, then fill the tube with urine, mix thoroughly and note the color reaction. Emerald or mint green indicates a positive reaction, while any tinge of blue renders it negative.

The writers have found a positive reaction constant in typhoid and very rare in other conditions. Its early appearance is valuable in indicating prompt isolation of a suspect. Its prognostic value is doubtful.

[L. D. C.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

APRIL 1, 1913.

1. CHURCHMAN, J. W. *The Selective Bactericidal Action of Stains Closely Allied to Gentian Violet.*
2. MARINE, D. *The Metamorphosis of the Endostule (Thyroid Gland) of Ammocoetes Branchialis (Larval Land-Locked Petro-myzon Marinus (Jordan) or Petromyzon Dorsatus (Wilder).*
3. ZINSSER, H., AND YOUNG, S. W. *On the Possible Importance of Colloidal Protection in Certain Phases of the Precipitin Reaction.*
4. MANWARING, W. H. *The Relation of the Leucocytic Bacteriolysin to Body Fluids.*
5. WOLLSTEIN, M., AND MELTZER, S. J. *The Reaction of the Lungs to the Intrabronchial Insufflation of Killed Virulent Pneumococci and of Plain Sterile Bouillon.*
6. ROBINSON, G. C. *The Influence of the Vagus Nerves on the Faradized Auricles in the Dog's Heart.*
7. EPSTEIN, A. A. *Further Studies on the Chemistry of Blood Serum.*
8. JOBLING, J. W., AND BULL, C. G. *Studies in Ferment Action. VII. Toxic Split Products of Bacillus Typhosus.*
9. TYTLER, W. H. *A Transplantable New Growth of the Fowl, Producing Cartilage and Bone.*
10. *MURPHY, J. B. *Transplantability of Tissues to the Embryo of Foreign Species. Its Bearing on Questions of Tissue Specificity and Tumor Immunity.*
11. ROUS, P. *False Transitions between Normal and Cancerous Epithelium.*

10. Murphy finds the developing chick embryo a very satisfactory host for various tumors. He studied particularly the Jensen rat sarcoma inoculated into the chick embryo. The rat tissues grown for long periods in the chick show no adaptation to the new species. These cells grow almost until the time of hatching, but even after growth in the embryo cannot be successfully implanted in the adult chicken. The method appears to be a valuable one for the further study of tumors and their specificity. [R. I. L.]

MAY 1, 1913.

1. LAMBERT, R. A. *Comparative Studies upon Cancer Cells and Normal Cells. II. The Character of Growth in Vitro with Special Reference to Cell Division.*
2. LINTZ, W. *The Bacteriology and Vaccine Therapy of Distemper in Horses.*
3. *DRAPER, G., AND HANFORD, J. M. *Experiments on the Transmission of Scarlet Fever to the Lower Monkeys.*
4. LEWIS, P. A., AND MONTGOMERY, C. M. *Experimental Pulmonary Tuberculosis in the Dog. The Effect of Large Amounts of Tubercle Bacilli of Bovine Type Introduced Directly into the Lungs by Way of the Air Passages.*
5. GAY, F. P., AND ROBERTSON, T. B. *The Antigenic Properties of Globin Caseinate.*
6. PEARCE, R. M. *The Renal Lesion of Experimental Cantharidin Poisoning.*
7. JONES, A. P. *The Value of Mallory's Connective Tissue Stain for the Demonstration of Variation in Thyroid Colloid.*
8. *FLEXNER, S., AND CLARK, P. F. *Paralysis in a Dog Simulating Poliomyelitis.*
9. DARLING, S. T. *The Immunization of Large Animals to a Pathogenic Trypanosome (Trypanosoma Hippicum, Darling) by Means of an Avirulent Strain.*
10. BUTTERFIELD, E. E., AND PEABODY, F. W. *The Action of Pneumococcus on Blood.*

3. Draper and Hanford were unable definitely to establish the transfer of scarlet fever to higher and lower monkeys. Some of their experiments were suggestive.

8. Flexner gives a final summary of nearly 1300 cases of epidemic meningitis treated by the serum prepared by the Rockefeller Institute. The mortality of all cases was 30%. The average mortality of the disease not treated by serum is at least 70%. Furthermore, complications and sequelae are reduced in number. [R. I. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 14. APRIL 8, 1913.

1. *NOGUCHI, H. *Discovery of Spirocheta Pallida in the Central Nervous System in Progressive Paralysis and in Tabes Dorsalis.*
2. *MAYER, M., ROCHA-LIMA, H., AND WERNER, H. *Studies of Verruca Peruviana.*
3. HOFFMANN, M. *Double-Breaking Myelin in Cataracts.*
4. HABRITZ, F. *Congenital Tuberculosis.*
5. GROEDEL, F. M. *Roentgenological Demonstration of the Appendix.*
6. KELLNER. *Mongoloid Idiocy.*
7. MEHLER, H., AND ASCHER, L. *Chemotherapy for Tuberculosis Experiments with Borcholin (Enzytol).*
8. SCHWENKE, J. *The Diagnostic Significance of Döhles Leucocyte-Inclusion in Scarlet Fever.*
9. LENSSER. *The New Spring of Kissingen and Its Significance for Cardiac and Vascular Disease.*
10. GOLDSTEIN, K. *A Case of Acromegaly after Castration in a Grown Woman.*
11. NEUDÖRFER, A. *Pylorospasm and Gastric Ulcer.*
12. SULTAN, C. *A Non-Indication for Resection of the Intestine.*
13. KANNGIESSER, F. *Has Blood-Relationship of Parents a Harmful Effect on the Health of Children?*
14. STURM, J. *Orthotic Albuminuria in Tuberculosis.*
15. FREUND, R. *Action of Serum-Ferments in Pregnancy in Cases of Tumor. Reply, etc.*

1. Noguchi reports having discovered the spirocheta pallida in the brains of 48 parasyphilitic cases out of 200 examined and in the posterior columns of the cord in one case out of 12 examined. The organisms were few in number and were discovered only by patient search and with the aid of improved technic, which is described.

2. In a single undoubted case of Verruca Peruviana, the writer discovered in the cells of the skin-lesions inclusions which suggest that the disease is produced by a member of the group of Chlamydozoa. Inoculation into monkeys was successful.

[G. C. S.]

No. 15. APRIL 15, 1913.

1. KAPP, R. *Physiological Surgery.*
2. *DOINIKOW, B. *Reaction of the Nervous System of Healthy Guinea-pigs to Large Doses of Salvarsan.*
3. BETTMANN. *Combined Treatment of Lupus with Old Tuberculin and Aurum-Colium Cyanatum.*
4. SCHAYER. *Note on Testing Renal Function.*
5. SCHLECHT, H. *General and Local Eosinophilia in Hypersusceptibility to Organic Arsenic.*
6. *KALL. *Practical Use of the Provocative Salvarsan Injection.*

7. Müller, M. *"Vasocommotio Cerebri," a New Severe Symptom-complex of the Salvarsan Infusion, etc.*
8. v. Dapper-Saalfels, C., and Jurgensen, E. *Indications for the New "Luitpold Sprudel" of Kissingen.*
9. Hauser, H. *Quadruplets and Their Mother.*
10. Schwarz. *Rupture of the Pregnant Uterus After Previous Cesarean Section.*
11. Reichmann, M. *Localization of Foreign Bodies in the Eye.*
12. v. Recklinghausen, H. *A New Apparatus for Measuring the Arterial Pressure in Man.* (To be continued.)

2. According to various observers, Doinikow believes that cerebral symptoms following the injection of salvarsan are due to a recrudescence of the syphilitic process; to neuritis probably produced by too high dosage or poor preparations of the drug; to edema or encephalitis owing to the reaction of the nervous system to the disease; and finally, to thromboses or hemorrhages produced by the drug in hypersensitive individuals or in normal individuals by too high dosage. To determine experimentally how important the drug is in producing cerebral reaction, Doinikow has injected healthy rabbits repeatedly over a long period of time with much higher dosage correspondingly, than that used for therapeusis. In no cases were changes in the central nervous system produced, but after single lethal doses in certain animals thromboses and hemorrhages were found in the brain.

6. Kall has found the injection of salvarsan useful as a provocative test to render the blood serum positive to the Wassermann reaction in cases of primary syphilis with a negative reaction, in untreated cases of secondary and tertiary syphilis, and in cases of suspected congenital syphilis. This reaction may be of doubtful value in certain cases of tertiary or cerebral luës or in differentiating syphilis from malignant disease. Kall emphasizes the importance of using the Stern modification of the Wassermann reaction in addition to the original test. The serum should be withdrawn on the day following the salvarsan injection, on the seventh and fourteenth days, and if necessary at intervals of from four to six months. [R. F.]

No. 16. April 22, 1913.

1. Seitz. *Galvanic Nerve-Muscle Irritability in Pregnancy. The Tetany of Pregnancy.*
2. Vogel. *Asthenia of Connective Tissue and Its Relation to the Healing of Wounds and Scar Formation.*
3. *Finsterer. *The Free Exposure of Inoperable Cancer of the Stomach to Roentgen Rays, and Its Consequence.*
4. Rominger. *The Production of Complement Fixation Reactions by the Addition of Chemicals to Normal Serum.*
5. Lele. *The Treatment of Brow Presentations.*
6. Grund. *Atrophic Myotonia.*
7. *Trautmann. *Tuberculosis of the Cervical Lymph Glands in Relation to the Tonsils and Lungs.*
8. Praetorius. *Pemphigus Malignus Cured by One Intravenous Injection of Blood.*
9. Wolf. *An Unusual Interference to Replacement in a Typical Fracture at the Ankle with External Luxation of the Foot.*
10. v. Recklinghausen. *A New Apparatus for Determining Arterial Blood Pressure in Man.* (Conclusion.)
11. Eijkman. *The Cause of Beriberi.*
12. Hellin. *The Influence of Induced Paralysis of the Diaphragm on Lung Diseases.*

3. Finsterer believes that cancer of the stomach should be removed in all cases when possible. In all inoperable cases gastro-enterostomy should be made whether or not the pylorus is obstructed. Finsterer describes his technic for freeing the tumor from the surrounding tissues in order to expose it to subsequent x-rays. Finsterer reports cases treated in this way. He believes the procedure is simple, that certain cases show considerable improvement, and that by it, metastases arise less quickly in neighboring lymph glands or organs.

7. It has been shown that tuberculosis of the glands of the neck is usually a secondary infection originating from any part of the mucous membrane of the mouth, nose, pharynx or larynx. The tonsillar ring is constantly exposed to infection, and on account of its anatomy affords an excellent portal of entry. Trautmann believes that tuberculosis of the glands of the neck should be treated not only locally, but also by extirpation of the tonsil on the affected side to prevent reinfection from an unrecognized focus. This operation should be performed even though the tonsil appears normal, and despite the fact that tonsillectomy is no longer regarded as a harmless and technically simple procedure. [R. F.]

Wiener Klinische Wochenschrift.

No. 16. April 17, 1913.

1. *Frankel, S., and Kirschbaum, P. *Adigan: a New Digitalis Preparation.*
2. Bauer, J. *Anabolic Ferments in the Serum in Endemic Goitre.*
3. Hesse, M. *The Use of Active and Inactive Serum in "Complement-Effacing Attempt."*
4. Clairmont, P. *Experiences in Field-Surgery.*
5. Steiner, R. *A Case of Dilatation with Hypertrophy of the Colon.*
6. Ferrari, H., and Urizio, L. *The Meiostagmine Reaction, Using Lecithin Extract.*

1. The authors conclude that by the use of adigan the saponin-body effects which manifest themselves by gastro-intestinal irritation are obviated in digitalis therapy. [F. S. K.]

No. 17. April 24, 1913.

1. *Epstein, E. *The Abderhalden Test for Carcinoma.*
2. Luithlen, F. *Differences in the Skin Reaction in the Infection of Serum and Colloidal Substances.*
3. Dautwitz, F. *Report from the Radium Institute at St. Joachimsthal.* 1912.
4. Wiener, E. *Vibrio Findings in a Yamen Sore.*
5. Jainpolsky, F. *Initial Sclerosis at the Carunculae Lacrimales.*
6. Neumann-Kneucker, A. *Cold-Conduction Anesthesia of the Inferior Maxillary Nerve.*
7. Novak, J. *The Treatment of Shoe Pressure.*

1. The results of this investigation are summarized as follows:—

(*a*) Of 37 examined sera of patients with carcinoma all but one, which was obtained from a patient 80 years old and very cachectic, digested carcinoma albumen. In none of these cases was placental albumen attacked.

(*b*) Seventeen of 18 sera from gravidae attacked placental albumen.

(c) Of 47 sera from patients, definitely not carcinomatous but suffering from severe disease and general debility, 46 did not have the power to digest carcinoma albumen. [F. S. K.]

No. 18. May 1, 1913.

1. Mannaberg, J. *Attempts to Influence Basedow's Disease by Exposure of Ovaries to the Roentgen Rays.*

2. *Ekler, R. *Experience with the Biological Diagnosis of Pregnancy After Abderhalden.*
3. Izar, G. *Antigens for the Meiostagmine Reaction.*
4. Fieber, E. *Surgical Experiences and Observations from Belgrade During the Balkan War.*
5 Lauber, H. *A Case of Cyclic Oculomotor Paralysis.*
6. Lundstrom, E. *Cases Illustrating Arsenic Poisoning.*

2. The author states that the dialysing method is easier than the optical method of performing the test for pregnancy. He describes the necessary apparatus, stating that suitable membranes permeable for peptones and impermeable for albumen are now kept in stock by a German concern. He describes the technic and the method of obtaining the serum—as a Wassermann puncture—which must be absolutely hemoglobin-free.

His results may be recorded as follows: 37 gravidae; all positive; 25 non-gravidae, all negative.

The material consisted of: 11 in early weeks, 5 in second month, 6 in third month, 3 in fourth month, 2 in sixth month, 4 extrauterines, 6 retained products post abortion.

The diagnosis of the early gravidae was later confirmed by the progress of pregnancy. Extrauterine and post-abortion cases proved pathologically after operation. Complications of pregnancy do not affect the reaction.

Among the negative cases were 4 endometritis, 4 chronic metritis, 4 myomata, 1 salpingitis, 1 cystoma *two months post partum*, 1 retrouterine exudate, 1 vesico-vaginal fistula *six months post partum*, 3 amenorrhea, 2 carcinoma of breast, 1 pyelonephritis and 1 man.

Therefore he concludes that the Abderhalden method is a sure means of determining pregnancy, and should be more widely used. [F. S. K.]

Deutsches Archiv für Klinische Medizin.

March 11, 1913.

1. Jacob, L. *The Specific Gravity of the Urine in Disease; Its Dependence upon the Whole Dried Residue and the Individual Part of the Urine.*
2. Baetge, P. *Eventratio Diaphragmatica with Electrocardiographic Studies.*
3. *Roth, O. *The Study of "Ictère Hémolysinique."*
4. McCrudden, H. *The Importance of Calcium for Growth.*
5. Renner, O. *The Innervation of the Kidneys.*
6. *Freund, H., and Marchand, F. *The Importance of Glycemia in Fever.*
7. Wittich. *The Value of the Karell Cure in Treatment of Circulatory Disturbances.*
8. Benedict, T. G. *Influence of Increase in Nourishment upon Metabolism.*
9. *Nonenbruch, W. *A Study of the Function of Congested Kidneys.*
10. Föcke. *The Importance of the New Work of Gottlieb and Ogawa on the Digitoxin Resorption for the Practicing Physician.*
11. Gottlieb, R. *Answer to the Preceding Criticism of Focke.*
12. Citron, J. *The Importance of Antibodies in Tuberculosis.*
13. Schürer, J. *Remarks on the Preceding Discussion.*

3. Roth in this paper takes up the question of the presence of isohemolysins in cases of anemia and anemic jaundice. In a severe case of primary anemia which he studied at length he found a marked evidence of autohemolysis and autoagglutination of the erythrocytes. By careful study, however, he came to the conclusion that this destruction of the red cells was due to a faulty structure on their part and that any serum treated the same way would destroy them. This is interesting as it will make all the claims for a specific active body in the serum void unless the resistance of the corpuscles has been well studied and found normal.

6. Freund and Marchand take up the question of glycemia in a series of normal and a large series of pathological conditions. It has frequently been stated that the sugar in the blood is increased during febrile conditions. They conclude that frequently an increase of sugar in the blood is observed during a fever, but that it does not bear as direct a relation to the height of the fever as it does to the kind and severity of the infection.

9. Nonenbruch in taking up Schlager's and others, tests in passive congestion of the kidney found that the nitrogen and water retention characteristic of vascular nephritis existed but in a different nature than when the glomeruli were permanently injured. The percentage of nitrogen might be quite high and therefore the retention due entirely to the lack of water elimination. The same could be said of the salt retention of tubular disease. [C. F., Jr.]

Revue de Médecine.

April, 1913.

1 Mabille, H., and Pitris, A. *A Case of Post-Apoplectic Anemia of Fixation, Having Persisted for Twenty-three Years.*
2. Froment, J., and Monod, O. *The Sign of Provost-Lichthein-Dejerine.*
3. Constaing and Filderman. *Dental Erosion, Regarded from the Standpoint of General Pathology.* (*Continued.*)
4. Lafforgue, M. *Associated Pneumococciae; Malaria and Pneumococcia.*
5. Revillet. *Three Cases of Vesical Paralysis and of Sudden Death Met in the Course of Pneumonia.* [L. H. S.]

Annales De L'Institut Pasteur.

March 25, 1913.

1. Besedka, A., Ströbel, H., and Japille, F. *Anaphylotoxine, Peptotoxine and Peptone in Their Relation with Anaphylaxis.*
2 *Nicolle, C., Blaizot, L., and Conseil, E. *Etiology of Recurrent Fever and Its Mode of Transmission in the Louse.*
3. Truche, Ch. *Studies on Ricin.*
4. Cesari. *Studies upon the Bacillus of Schmorl.*
5. Chonkewitch, J. *Investigations upon the Bacterial Flora of the Large Intestine in Cattle and Sheep.*

2. These authors studied an epidemic of recurrent fever which occurred in Tunis and its vicinity. In this paper they review the work on the etiology of this disease and the attempts to show the method of transmission of the spirilla. Their suspicion, as that of others, has centered upon the louse. Their experiments, which consisted in lice biting the sick and then other humans, turned out negative. They dared try it on humans because a dose of salvarsan quickly cured the condition. They persisted in their study of the louse, however, and found that the spirillum disappeared very quickly after it entered the lice, but about the eighth day reappeared in the lacunal spaces and there alone. Studying now this spirillum, they find it will produce recurrent fever in monkeys on injection. Apparently it has not been tried out in the human but they feel sure that it also transmits the disease to man through some cutaneous injury. The mode of transmission from the closed lacunal spaces of the lice to the human organism is unsettled. This disease, they think, can now be classed with typhus

fever, as one which can be eradicated by the extermination of the head and body louse. [C. F., Jr.]

SEI-I-KWAI MEDICAL JOURNAL.

APRIL, 1913.

1. *SEWAKI, H. *Second Report on the Method of Increasing Body Weight.*
2. NAGAYAMA, S. *Does the Action of Salvarsan Give Some Influence to Gastric Juice upon the Albuminoid Digestion?*
3. MOGI, S. *On a Case of Deformed Aorta and Heart.*
4. NOMURA, K. *On the Treatment of Epilepsy.*

1. In his first report (see JOURNAL, p. 710) Sewaki undertook to demonstrate the effectiveness of antityphoid inoculation in increasing the body weight. In this second report, he discusses indications and contraindications for its employment. He believes its use is best controlled by the white count and determination of opsonic index. He further reports the tabular protocols of 12 additional series of experiments to determine the effect of other injected substances on the body weight. [R. M. G.]

Miscellany.

AMERICAN COLLEGE OF SURGEONS.

AN American College of Surgeons was organized at a meeting in Washington on Monday evening, May 5, 1913. Four hundred and fifty prominent surgeons of the continent of North America came together at the invitation of an Organization Committee which was appointed by the Clinical Congress of Surgeons of North America at its meeting in November, 1912. This committee consisted of Edward Martin of Philadelphia, Emmet Rixford of San Francisco, John B. Murphy of Chicago, Rudolph Matas of New Orleans, Albert J. Ochsner of Chicago, Charles H. Mayo of Rochester, Minn., Frederic J. Cotton of Boston, George Emerson Brewer of New York City, J. M. T. Finney of Baltimore, W. W. Chipman of Montreal, George W. Crile of Cleveland and Franklin H. Martin of Chicago.

The invitations, which resulted in this large gathering of surgeons in Washington, were extended by the Organization Committee after a carefully prepared campaign in which each large university city on the continent was visited by a member of the committee who met, in person, a group of selected men brought together by a committee of three in each locality, which committee had been authorized by the Organization Committee to extend an invitation to the surgeons in their locality to meet the representative of the Organization Committee. These five hundred men who were invited to the meeting in Washington, four hundred and fifty of whom responded, represented all branches of surgery and surgical specialties. The surgeons responding to the invitation were designated the Founders of the College.

The Call of the Meeting was read by Franklin H. Martin, Secretary of the Committee. This call, which is herein quoted in part, summarizes the work for which the Committee was authorized:

"First, It should formulate a minimum standard of requirements which should be possessed by any authorized graduate in medicine, who is allowed to perform independently surgical operations in general surgery or any of its specialties.

"Second, It should consider the desirability of listing the names of those men who desire to practice surgery and who come under the authorized requirements.

"Third, It should seek the means of legalizing under national, colonial, state or provincial laws, a distinct degree supplementing the medical degree, which shall be conferred upon physicians possessing the requirements recognized by this law as necessary to be possessed by operating surgeons.

"Fourth, It should seek co-operation with the medical schools of the continent which have the right to confer the degree of M.D., under the present recognized standards, and urge these colleges to confer a supplementary degree on each of its graduates who have, in addition to their medical course, fulfilled the necessary apprenticeship in surgical hospitals, operative laboratories and actual operative surgery.

"Fifth, It should authorize and popularize the use of this title by men upon whom it is conferred, and its use should especially be urged in all directories of physicians in order that the laity as well as medical men can distinguish between the men who have been authorized to practice surgery, and those who have not."

The Founders Organization was then completed by the election of Edward Martin as Chairman and Franklin H. Martin as Secretary and the authorization of an order of business.

Much interest was manifested in the method to be pursued in the selection of the members of the Corporation and in the method of conferring fellowships. A series of resolutions covering this subject were offered by the secretary and adopted.

The prospective Fellows are to be divided into four classes, A, B, C, and D. Classes A, B, and C are by resolution to be admitted without the formality of submitting to an examination under the following resolution:

"*Resolved*, That the A class shall consist of founders of the college.

"The B class shall consist of the members of the special surgical societies constituting the Congress of American Physicians and Surgeons and one hundred each, nominated by accredited committees, from the Surgical Section of the American Medical Association, from the section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, from the General Surgical Section of the Clinical Congress of Surgeons of North America, from the

Division of Surgical Specialties of the Clinical Congress of Surgeons of North America, from the American Association of Obstetricians and Gynecologists, from the Surgical Section of the Canadian Medical Association, from the Southern Surgical and Gynecological Association and from the Western Surgical Association.

"The C class shall consist of surgeons of prominence of five years in the practice of surgery or a surgical specialty and who, in the opinion of the Committee on Credentials, are eligible for fellowship in the College without formal examination."

For all others, coming under class D, the following resolution was passed:

"*Be it Further Resolved*, That the Board of Regents, through the Committee on Credentials, limit the admission of the Fellows to classes A, B, and C until the Board of Regents formulates a standard of requirements for class D and reports the recommendations back to the Board of Governors for approval at the meeting to be called by the Board of Regents in Chicago, November, 1913."

It will be the spirit of this Association to open the fellowship to all competitors in surgery without favor. Scientific attainments, surgical ability, unquestioned moral character, measured by the College's standards, shall constitute the measure for fellowship.

There are many hundreds of surgeons on the continent, who are not included in classes A and B, who fall into the C class. Applications from these men will be welcome and their names will have the most careful consideration by the Committee on Credentials.

All applications for membership should be forwarded to the secretary of the corporation. It would add to the ease of the work of the Committee on Credentials if references in the way of vouchers or recommendations from one or more well-known surgeons accompany each application for fellowship.

The first convocation for the formal conferring of fellowships will occur in November, 1913, at a time and place that will be designated later. The first directory of Fellows will be distributed at that meeting. For that reason the applications for fellowships on the part of A, B, and C classes should be filed as promptly as possible in order to facilitate the correcting of lists for publication.

DR. FRIEDMANN'S VACCINE.

SINCE the sale of Dr. Friedmann's vaccine, noted in the issue of the JOURNAL for May 8 (p. 702), medical interest in the possible value of his method of treating tuberculosis has naturally much diminished. On May 9, Dr. John F. Anderson and Dr. A. M. Stimson, of the United States Public Health Service, reported in part as follows, to the National Association for the Study and Prevention of Tuberculosis, the result of their official study of the vaccine:

"We must not lose sight of the possible therapeutic value of this preparation, and on the other hand it is necessary to guard against too great an optimism in respect to its merits. Without presenting in detail the condition of patients under observation, we are in a position to state that the facts thus far observed do not justify that confidence in the remedy which has been inspired by widespread publicity. In our opinion harm may have been done by this undue publicity insofar as it has lessened the confidence of tuberculosis persons in well recognized methods of treatment or interrupted their use, and we are constrained to advise against any lessening of those well known measures which not only had effected cures, but which have reduced the incidence of the disease. We are aware that Dr. Friedmann does not wish to be judged scientifically on newspaper statements and he would undoubtedly disclaim responsibility for certain of those which have appeared. Nevertheless it is on those that the public bases its opinion until replaced by reliable and unbiased scientific pronouncements, supported by convincing data.

"In our series of patients Dr. Friedmann has almost exclusively made use of the intra-muscular method alone in pulmonary cases, and a very considerable proportion of them have either developed no considerable infiltrate at all or have suffered from abscess formations. It is evident, therefore, that a very considerable portion of these patients may expect their treatment at the hands of Dr. Friedmann to extend over a long period.

"Concerning the cultures submitted to us we may state that a series of experiments is under way. The bacillus has been found to be an acid-fast organism having properties quite different from those of any tubercle bacillus with which we are acquainted. It appears to be identical with an organism cultivated from a few loopfuls of the material used for injection which Dr. Friedmann permitted us to place on culture media in his presence. We requested Dr. Friedmann to furnish us with a large amount of this material for examination, but this he has declined to do. We can state, however, that living acid-fast bacteria are being injected by the intramuscular and intravenous method, although we are ignorant of what medium they are suspended in or what additional substance or substances may be contained in the final mixture."

On Monday of last week, May 19, the New York Friedmann Institute, the first of the 36 projected state institutions under the terms of sale, formally opened its doors for the reception of patients. As yet, Dr. Friedmann's preparation has not been licensed under the vaccine act, and therefore cannot be shipped in interstate commerce.

MASSACRE OF CHINESE LEPERS.

A RECENT communication from China confirms the report, published in the issue of the JOURNAL for Jan. 23 (p. 138), describing the massacre of 39 lepers on Dec. 14, 1912, at Nanking, the capital of the province of Kwang-Si.

"For eight years Catholic missioners had cared for these lepers, who, like hunted beasts, had taken refuge in some woods a short distance from the suburbs of the town. Recently they had bought near this place a plot of ground on which they were erecting a leper hospital. Though they were at first promised the support of the authorities, it soon became evident that the people of the higher classes were opposed to the movement. The missioners, however, went to the president and pleaded the cause of the lepers. They were received with the greatest courtesy and assured of official co-operation. Then, like a bolt from heaven, came the news, 'All the lepers have been killed.'

"The confirmation of the report only added more terrible details. A hundred soldiers had surrounded the lepers so that none could escape. Then, driving them like cattle to the slaughter, they plunged them into a trench, the bottom of which was covered with a thick layer of wood. The order 'Cha!' ('Kill!') was given and the guns were fired upon the unfortunate victims. Afterwards petroleum was poured over their bodies and the rising flames announced that the 'notables' of the city had conquered.

"A crowd of people witnessed this inhuman spectacle without a sign of pity and the instigators of the crime have shown no evidence of remorse for their cruelty. They have, on the contrary, started a man-hunt, offering a reward for the disclosure of lepers, who are seized, shot and burned as were those first taken. The Government is proud of its exploit and looks for universal approval."

A SPANISH SURGICAL ROMANCE.

THEIR is a flavor of high Castilian romance about the following tale, reported from Madrid on May 6, involving a Spanish surgeon in an unusual suit for damages:

"Señor Gomez Lopez del Navarette, a well-known diplomat of Barcelone, was in love with an actress, Señorita Dolorez Riverode Romanones, who is the daughter of an aristocratic Spanish family, whose name she brought into great notoriety by going on the stage. A young, but already famous surgeon, was also a suitor for Dolorez, and her affections wavered so uncertainly as to cause a duel between the young men in which the diplomat was wounded in the leg.

"Immediately Dolorez was at his side and nursed him devotedly. Several doctors were consulted, but the leg only became worse. At last Dolorez persuaded her lover to consult his rival, the brilliant young surgeon. He did so and the surgeon said that amputation would alone save his life as gangrene had set in.

"More persuasion by the actress, who assured him that her affections were now fixed, was needed before the young diplomat would consent to the operation. The operation was eventually performed and Señor Navarette provided with an artificial leg.

"In spite of her previous protestations Dolorez had now to confess that she could never marry a man with one leg. Not long after she married the young surgeon. This aroused Navarette's suspicions and he visited the doctors whom he had consulted before the operation. They all assured him that gangrene was, in their opinion, quite impossible. He is now bringing an action for damages against his successful rival."

Correspondence.

POLISHED RICE AND BERIBERI.

POST HOSPITAL,
PLATTSBURGH BARRACKS, N. Y.

May 15, 1913.

Mr. Editor: In a recent communication in your JOURNAL on the subject of "polished" rice, Dr. Horace Packard leaves in my mind the impression that he considers the eating of "polished" rice to be a matter of importance in this country. Such an idea is, I believe, erroneous. For two years I have been connected with the experimental beriberi work in the Philippines, and with the selection of rice for the use of the "Philippine Scouts." Beriberi has disappeared from the organization known as the "Philippine Scouts" as a result of certain changes in the dietary, the most important of which were the substitution of undermilled for highly milled rice, and the addition of beans to the ration. I fully believe that the use of a diet consisting *chiefly* of "polished" or highly milled rice will lead to the development of polyneuritis in birds and beriberi in man. In the Orient the milling of rice is a most important matter, since hundreds of millions of men live almost exclusively on that grain. In the United States, however, no such importance attaches to the methods of preparation, since rice is used to such a limited extent in the dietary. "Polished rice" does not contain any harmful element, but merely *lacks some substance which is necessary to nerve nutrition.* When used as an occasional component in a mixed dietary the neuritis-preventing substance which is lacking in the rice is supplied from other components and no harm results. Beriberi occurs only when the individual subsists *almost exclusively* on highly milled rice.

Many other articles of diet are as deficient in the neuritis-preventing substance as is highly milled rice. Little has shown that beriberi develops among fishermen in Canada when they are living chiefly on bread made from white flour. (Whether the neuritis-preventing principle was originally absent from the flour or had been destroyed by heat is not evident.) Dr. Creighton Wellman, in a paper read May 8, 1913, before the American Association of Tropical Medicine in Washington, showed that in many common breakfast foods, and in both Irish and sweet potatoes, there was

not enough of the neuritis-preventing element to maintain health. Therefore polyneuritis developed in fowls subsisting exclusively on these articles.

Several states have passed, or have pending, legislation prohibiting the sale or production of "polished rice." Such legislation is of great importance in Oriental countries where beriberi is a scourge, but is most ill-advised in the United States where rice is little used and where beriberi rarely if ever occurs. If the profession advocates such unnecessary legislation it but weakens its own authority on sanitary matters. A resolution opposed to such legislation in the United States was passed by the American Association of Tropical Medicine at the meeting in Washington May 6 to 8, 1913.

Aside from the main issue this legislation is ill-advised because the expression "polished rice," *as used in the United States*, is not synonymous with "highly milled" rice. The term "polished rice," as used by the trade in America, means rice coated with talcum and glucose. An undermilled rice which is beriberi-preventing might be coated in this manner and then would be called "polished." On the other hand a highly milled beriberi-producing rice if not coated with talcum and glucose would not be classed as "polished," yet would be dangerous if it constituted the chief article of diet.

As used in the Orient the term "polished rice" means rice which has been deprived of nearly all of its pericarp, together with most of its aleurone layer. White rice, scoured rice, steam-mill rice, machine rice, uncured rice and highly milled rice are other terms used to express the same degree of milling. Contrasted with "polished rice" is the "unpolished rice" which is beriberi-preventing. It has a large part of the pericarp, or inner skin, left on the kernel. Other terms for this quality of grain are undermilled rice, cured rice, red rice, hand pounded rice and whole rice.

Yours respectfully,

W. P. Chamberlain, M.D.,

Major, Medical Corps, United States Army.

THE RADIOGRAPHY AND TREATMENT OF FRACTURES.

May 14, 1913.

Mr. Editor: The Committee on Fractures of the American Surgical Association desires to have two reprints of any paper dealing with the non-operative or operative treatment of *open or compound fractures*, which have been published within the last five years.

The Committee also desires papers on the *medico-legal relations of radiography* to the diagnosis and treatment of fractures.

If authors on these subjects have no reprints, the Committee would be pleased to receive memoranda of the places of publication of such papers.

John B. Roberts,

Chairman Committee on Fractures,

313 S. 17th Street, Phila.

CHANGES IN MEDICAL CORPS, U. S. NAVY, FOR WEEK ENDING MAY 17, 1913.

Cather, D. C., passed assistant surgeon. Detached from U. S. S. *Vermont*, to wait orders.

Hart, S. D., assistant surgeon. Ordered to Atlantic Reserve Fleet.

Alfred, A. R., surgeon. Detached from the Receiving Ship at Mare Island, Cal., and ordered to Naval Proving Grounds, Indian Head, Md.

Angony, G. L., surgeon. Ordered to Navy Recruiting Station, Richmond, Va.

Stoops, R. E., passed assistant surgeon. Detached from Naval Hospital, Great Lakes, Ill., and ordered to Naval Training Station, Great Lakes, Ill.

Lyon, W. C. assistant surgeon. Detached from Navy Recruiting Station, Richmond, Va., and ordered to Navy Recruiting Station, Galveston, Texas.

Koltes, F. X., passed assistant surgeon. Detached from Nav. Train. Sta., Great Lakes, Ill., to *New Jersey*.

Cottle, C. F., passed assistant surgeon. Detached from Nav. Hosp., Great Lakes, and ordered to Nav. Train. Sta., Great Lakes.

Davis, R. G., assistant surgeon. Detached from Nav. Proving Grounds, Indian Head, Md., and ordered to Asiatic Sta.

Robertson, G. E., assistant surgeon. Detached from Marine Expeditionary Force, and ordered home, to wait orders.

Zalesky, W. J., passed assistant surgeon. Ordered to *Helena*.

Hough, F. P. W., passed assistant surgeon. Ordered to Naval Hospital, Canacao, P. I.

Sullivan, N. R., assistant surgeon. Ordered to Naval Hospital, Canacao, P. I.

Mahoney, J. A., acting assistant dental surgeon. Ordered to *Saratoga*.

Benton, F. L., surgeon. Detached from Marine Expeditionary Force, to wait orders.

Melhorn, K. C., passed assistant surgeon, detached from Naval Hospital, Newport, R. I., and ordered to *South Dakota*.

Robbins, I. W., assistant surgeon. Detached from *South Dakota*, and ordered home, wait orders.

Rose, M. E., acting assistant surgeon. Ordered to Navy Yard, Philadelphia, Pa.

RECENT DEATHS.

Dr. Jesse William Henry, a retired physician of Brooklyn, N. Y., died May 16, in his 84th year. He was a native of Connecticut, and was graduated at Georgetown, D. C., in 1866.

Dr. Edward F. Brooks, of Newburgh, N. Y., was killed in his automobile at a railroad crossing on May 13. Dr. Brooks was 43 years old and was graduated from the medical department of New York University in 1894.

Dr. David B. Schwartz, of Brooklyn, N. Y., who died at Pasadena, Cal., on May 16, was born in 1883. He was not married.

Dr. Elmer E. Brown, who died at Philadelphia on May 23, was born in 1857. After engaging successfully in business for some years, he entered the Jefferson Medical College, from which he received the degree of M.D. in 1897.

Original Articles.

STUDIES IN BACTERIAL METABOLISM.

IX.

THE RELATION OF BACTERIAL METABOLISM TO INTERNAL MEDICINE.*

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THE history of science furnishes many instructive instances where purely empirical methods have developed in response to the stress of practical needs. Often these purely empirical methods have deviated somewhat sharply from the beaten path, and not infrequently subsequent investigations have shown them to be starting points for entirely new conceptions of the subject. The history of diphtheria antitoxin furnishes an extremely interesting and instructive example of such development. Prior to the discovery of antitoxin and subsequently even bacteriology was concerned largely with the diagnostic aspect of medicine, that is, its province was definitely limited to the etiological relationship of bacteria to disease. The advent of antitoxin, however, changed the view point of at least those engaged in its production. They were compelled to study those factors which influence the appearance of toxin in cultures of the diphtheria bacillus, since diphtheria toxin is essential for the production of antitoxin. In the early days of antitoxin production, when the factors influencing the appearance of this diphtheria toxin were unknown, it was observed that the toxicity of cultures of the diphtheria bacillus, even of the same strain was notoriously variable. At one time a potent toxin would be obtained, while again, with apparently the same conditions, scarcely any toxin would be formed, even when the same strain which had previously produced a potent toxin was employed. In 1888 Roux and Yersin[1] studied this phenomenon in some detail. They noticed that toxin production had a rather definite relationship to the reaction of the medium, for at the start the diphtheria bacillus usually brought about an acid reaction in broth. Later, as the organisms increased in numbers the reaction tended to become alkaline. During the period of acid production, little or no toxin appeared to be formed. During the second period, as the reaction became alkaline, toxin production began. In 1893 Theobald Smith[2] called attention to the fact that broth cultures of the diphtheria bacillus remained alkaline even from the start if sugars were carefully excluded from the media in which they were grown. Later, Spronck[3] studied the phenomena involved anew, and rediscovered the fact which Smith had previously called attention to, namely, that the muscle sugar of the meat from which the broth is prepared was responsible for this change in reaction. Spronck also confirmed the observation of Reux and Yersin, that the initial period of acid production was one in which toxin is not formed in measurable quantities. Finally, Smith[4] demonstrated conclusively that, while the observations of Roux and Yersin, and of Spronck were correct so far as the gross facts were concerned, yet the acid formation *per se* was not the factor which prevented the appearance of the toxin as they had supposed. Smith mixed toxin with 3.6 per cent. of lactic acid and incubated them at 37° Centigrade for several weeks. At the end of this time the potency of the toxin was proved to be unaltered and the experiment was discontinued. He also definitely proved that the presence of the muscle sugar in some manner prevented the formation of diphtheria toxin; that the elimination of this sugar and a liberal supply of oxygen were the two prime requisites for the production of a powerful toxin. The initial acidity which is observed in cultures of this organism not previously freed from muscle sugar is due to the action of the bacilli upon this sugar, and that only when this sugar is used up is there toxin formation. During the period of toxin production the reaction of the medium becomes progressively alkaline. It appears, then, that fermentable sugar exercises a profound influence upon toxin formation by the diphtheria bacillus. Dr. Smith tells me also that the same phenomenon is equally true for the production of tetanus toxin. It should be added that an alkaline reaction *per se* is not sufficient to prevent the utilization of sugar if it be in the medium. Irrespective of the reaction of the medium, utilizable sugar is attacked in preference to the protein constituents. It appears, then, that the absence of utilizable sugar is the condition which influences most profoundly the appearance of toxin in cultures of the diphtheria bacillus. When such sugar is absent, toxin formation proceeds; when it is present, toxin formation does not take place.

Similarly, the products of metabolism of bacteria such as *B. coli* are influenced profoundly by the presence or absence of utilizable carbohydrate. In plain broth (freed from sugar by the well known Smith method) *B. coli* produces ammonia, hydrogen sulphide, phenol, indol and other decomposition products of protein origin. The reaction becomes progressively alkaline, a strong, foul odor develops. This is bacterial putrefaction. The same bacillus grown in precisely the same broth with the addition of one per cent. dextrose (or other utilizable sugar) will produce carbon dioxide, hydrogen, lactic and smaller amounts of other fatty acids. The reaction becomes progressively acid, the odor not unpleasant. This is bacterial fermentation. The colon bacillus utilizes sugar in preference to protein when both are simultaneously offered to it in the same medium. The protein in the sugar-free and sugar-containing media is the

* Read before the Suffolk Medical Society, March 5, 1913.

same in the experiment quoted. The addition of the sugar has shielded the protein from bacterial attack. It is worthy of note that this same preference of *B. coli* for sugar is made use of in freeing the media from sugars prior to making these experiments. If this process of freeing the medium from sugars by fermentation with *B. coli* is allowed to proceed too far—if the sugar is exhausted before the bacteria are killed, in other words, products indicative of protein breakdown appear. In like manner, the fermentative action of bacteria in general is judged by the production of acid, or acid and gas in certain so-called sugar media. These sugar media are fundamentally the same—plain, nutrient sugar-free broth. To this sugar-free broth is added the desired sugar. If the organism in question "ferments" one of these sugars, chemical analysis will show that the reaction becomes acid, and that the sugar is gradually destroyed. If the organism does not "ferment" the sugar, the reaction becomes more or less alkaline, and the sugar may be recovered quantitatively at the end of the experiment.

This shielding action of sugars for protein can be observed in other phenomena of bacterial growth. It is a well known fact that the cholera vibrio liquefies gelatin under ordinary conditions. This liquefaction is due to the fact that the vibrios decompose the gelatin with the formation of simple compounds which are soluble instead of being insoluble as is the unacted-upon gelatin. Gorini[5] found that the cholera organism would not liquefy gelatin readily if certain sugars were added to it and that the so-called "cholera red" reaction was not produced if the organisms were grown in broth containing sugars. Similarly, Auerbach[6] found that *B. proteus* (proteus vulgaris) did not liquefy gelatin if it contained sugars that this organism could ferment. Both Auerbach and Berghaus,[7] who studied the phenomena involved in this problem more in detail, believed that the acid formed in sugar media was the cause of the inhibition of proteolysis by the proteus bacillus. Berghaus performed a very ingenious series of experiments which at first sight appear to confirm this assertion. He inoculated *B. proteus* into sugar gelatin and plain gelatin. The sugar gelatin became acid in reaction, and gas bubbles appeared in it. The plain gelatin (sugar-free) became alkaline and rapidly liquefied. This liquefied gelatin was filtered through a Pasteur filter to separate out the bacteria, leaving the fluid gelatin containing the proteolytic enzymes of the proteus bacillus dissolved in it. This sterile, liquid gelatin was added to some sterile sugar gelatin which previously had not liquefied when it was inoculated with proteus bacilli. The gelatin liquefied rapidly. In other words living proteus bacilli would not liquefy sugar gelatin; the enzymes from these same bacilli *grown in sugar-free gelatin* would liquefy gelatin whether it contained sugar or not. It is worthy of note that the sugar gelatin acted upon by *B. proteus* did not contain proteolytic enzymes in measurable amount. At first sight this situation seems paradoxical. The explanation, which seems to fully meet and fully correlate them, is a very simple and direct one. *Living* proteus bacilli select sugar in preference to gelatin and utilize it for their metabolic needs. The action on gelatin under these conditions is minimal. In sugar-free gelatin, on the other hand, the bacteria are forced to obtain their full food requirements from the gelatin and other proteins of the medium. The gelatin is acted upon apparently by a liquefying enzyme (proteolytic enzyme) excreted by the bacteria. This enzyme is soluble in gelatin and prepares it for bacterial metabolism. This enzyme remains in the gelatin after the bacteria are removed by filtration and it is this enzyme which liquefies sugar gelatin when bacteria are not present. The proteus bacilli apparently do not secrete a proteolytic enzyme when they are using carbohydrate, so that no liquefaction takes place under these conditions. It will be seen, therefore, that these experiments do not depend upon the presence of acid for their explanation; the fundamental feature of the situation is that living bacteria of the type mentioned act upon sugar in preference to protein (gelatin) if they can get it; under these conditions no proteolytic enzymes are formed in demonstrable amounts. In the absence of sugars the bacteria are forced to utilize protein. The visible action of these organisms upon sugar-free gelatin is brought about by a proteolytic enzyme which they excrete and which remains dissolved in it. The liquefaction of sugar gelatin by this ferment is not at all comparable to the conditions under which this ferment is actually produced. The production of the ferment involves the proteolytic activity of living proteus bacilli; the action of the ferment separated from these bacilli is a purely passive one and under these conditions gelatin will be attacked irrespective of any substances dissolved in it, provided the physical conditions are suitable. The fermentation of sugar does not apparently call forth this enzyme. The presence of a small amount of sugar at first appears to inhibit or prevent proteolysis; after the sugar is used up, however, if the reaction has not become too acid for the bacteria to grow, the proteolytic ferment appears and the medium begins to liquefy. The whole series of phenomena involved hinges on the sparing action of carbohydrate for protein, shielding the latter from bacterial metabolism. It is a noteworthy fact that the composition of the bacterial bodies themselves varies according to the nature of the medium in which they are grown. Lyons, and independently, Cramer, observed that bacteria grown in media rich in carbohydrate contained about twenty per cent. less nitrogen and a like excess of extractive in their bodies compared with the amounts of these substances which appeared when they were grown in an excess of protein, but no carbohydrate.

To recapitulate: qualitative evidence of the

sparing action of utilizable carbohydrate for protein, the former shielding the latter from bacterial attack, has been produced, which appears to warrant the assumption that the nature of the metabolic products of bacterial activity varies according to the substratum upon which they are grown. If they are grown in purely protein media, the products of their metabolism are largely nitrogen-containing. They are putrefactive, they may or may not be malodorous, and they may be toxic. The *same* bacteria grown in the *same* protein, to which is added utilizable carbohydrate produce non-nitrogenous "fermentative" products which may be irritative, rarely or never truly toxic. They are, however, acid in character. The pathogenic bacteria, such as the diphtheria bacillus, produce powerful extracellular toxins in sugar free media; they produce innocuous acids in the same media containing, however, sugars in addition. Bacteria of the colon type produce indol, phenol and similar products in sugar free media; lactic and similar acids and other non-nitrogenous compounds in sugar media. Liquefying bacteria change gelatin to relatively simple, soluble compounds in the absence of sugar, but leave gelatin or other protein practically intact if sugars are present. The phenomena involved in this discussion may be stated as follows: "Fermentation takes precedence over putrefaction," meaning by this that bacteria which are able to utilize both carbohydrate and protein act upon the former in preference to the latter when both are simultaneously present in the same medium. This shifting of metabolism is not a purely academic distinction—it contains theoretical possibilities which are of considerable interest from many ponts of view. Before discussing them, however, certain other evidences of the correctness of this assertion of the sparing action of carbohydrates will be introduced. First of all, certain features of bacterial metabolism which are not brought out by these purely qualitative studies must be considered. Although the dictum that "fermentation takes precedence over putrefaction" is qualitatively evident, it must be apparent from purely *à priori* considerations that there is also another factor involved in bacterial metabolism. Bacteria, in common with all known living things, are nitrogen-containing. Hence, bacteria, even when they are utilizing carbohydrate in preference to protein, require a certain amount of the latter for their nitrogen requirement. A somewhat crude illustration will make this need for nitrogen clear. Bacterial life may be likened roughly to that of a locomotive. A locomotive is built of steel and iron; it is run with coal and water. When a locomotive is built, the structural requirement, aside from loss of parts and small repairs, is ended. The fuel requirement, on the contrary, is not ended until the machine goes out of commission. The fuel requirement, then, represents a steady consumption of material, and is by far the greater of the two. In a like manner the bacterial body is built up of complex, nitrogen-containing substances: this is the structural requirement. The fuel requirement, as is the case with the locomotive, is much greater than the structural requirement. When the bacterial body is complete, the structural requirement aside from losses incidental to the formation of enzymes, etc., is practically ended. The fuel requirement, on the contrary, is a continuous one. The structural requirement is extremely small; the fuel requirement may be very large, comparatively. The structural requirement must be made good in terms of nitrogen. Many bacteria can utilize either nitrogenous substances (protein or protein derivatives) or carbohydrates for their fuel. If both are presented to the organism simultaneously, the utilizable carbohydrate appears to be the one selected for fuel.

Some idea of the theoretical structural requirement of a bacterium may be obtained from the following figures: *B. coli* is a cylindrical organism about one micron in diameter and two in length. (A micron is one one-thousandth of a millimetre). The actual cubical contents of a colon bacillus are, therefore, 0.001 x 0.001 x 0.7854 x 0.002 mm. This is equal to 0.00000000157 cubic millimetres. If the specific gravity be assumed to be that of water (it is probably slightly greater, the figure quoted being about 1.040) the weight of a colon bacillus will be 0.00000000157 milligrams. That is to say, fifteen hundred million *B. coli* would weigh about one milligram. Remembering that fully eighty-five per cent. of this weight is water, the actual solid material in the body of an organism of the size of *B. coli* is very little.

It is actually possible to measure quantitatively the sparing action of carbohydrate for protein. This is accomplished by comparing the rate and amount of ammonia formation in media with and without utilizable sugar, but otherwise of the same composition. The ammonia content is a fairly accurate index of protein breakdown. (For the exact details and analytical figures of a long series of metabolism determinations made according to this method see Kendall and Farmer,* from which the figures quoted here are taken). The facts brought out by such a series of determinations are interesting and significant. They are briefly as follows:

1. Bacteria which cannot utilize sugar break down as much protein in sugar-containing media as they do in media of the same composition, but without the sugar. Such bacteria are "obligately carnivorous."

2. Bacteria which can utilize sugar, break down less protein in a sugar-containing medium than they do in one of the same protein content, but without sugar.

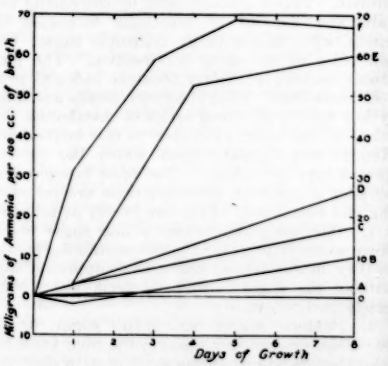
3. All bacteria break down some protein (aside from those "nitrifying bacteria" which occur in the soil) as judged by the increase in ammonia content and other evidence of protein katabolism, whether protein alone, or protein and carbohydrate is being acted upon. In other

words, all bacteria need at least a minimal amount of protein in their dietary. This explains the well known fact that bacteria cannot grow in pure sugar solution.

A careful anlysis of the analytical figures obtained from a series of comparative studies of the metabolism of certain bacteria derived from the intestinal tract of man brings out in a striking manner not only the sparing action of carbohydrate for protein, but also certain features relating to the metabolism of the more strictly pathogenic bacteria as contrasted with that of the more saprophytic and parasitic forms. Qualitatively, the more pathogenic bacteria are less active culturally (chemically) than the less pathogenic bacteria. The following table of the more important characteristics of certain of the pathogenic and non-pathogenic bacteria of intestinal origin illustrates this well known fact clearly:—

	Dextrose	Lactose	Saccharose	Mannite	Milk	Gelatin	Indol
B. dysenteriae (Shiga)	+	—	—	—	±	—	—
B. dysenteriae (Flexner)	+	—	—	+		—	—
B. typhosus	+	—	—	+	+	—	—
B. paratyphosus alpha	g	—	—	g	+	—	—
B. paratyphosus beta	g	—	—	g	±	—	—
B. coli	g	g	—	g	c	—	+
B. proteus	g	—	g	—	p	+	+
B. mesentericus	+	—	—	—	p	+	+

+ = acid, or liquefaction of gelatin, or indol formation.
— = alkali, or non-liquefaction of gelatin.
g = gas production.
± = initial acidity followed by alkalinity.
c = coagulation of milk.
p = peptonization of milk.



It will be seen that the more strictly pathogenic bacteria, the dysentery group and *B. typhosus* produce acid, but no gas in dextrose. Milk is acidified, due to the fermentation of the small amount of dextrose in it, but the reaction then tends to become alkaline as the protein is attacked. Gelatin is not liquefied and indol is not produced. These reactions are minimal; they are about the slightest that can be given in such media by any known bacteria. The fermentation of dextrose leads to the formation of lactic acid, but not to deeper seated change in the sugar. Lactic acid still contains considerable energy in it. The paratyphoid bacilli break down dextrose, in part at least, much more deeply. A portion of the molecule is reduced to its lowest terms, carbon dioxide and hydrogen. No energy is left in these compounds. There is little evidence of proteolysis; the protein molecule is not broken down deeply by these bacteria. They are, however, less pathogenic on the average than typhoid bacilli. The colon group and *B. mesentericus* on the contrary, break protein deeply, the latter more so than the former. They form indol, and doubtless, other products of protein degradation not recognized at the present time. It is an interesting fact to note that *B. coli* does not liquefy gelatin and that it is more often associated with morbid processes than are either *B. mesentericus* or *B. proteus*. The gross facts, the increase of cultural activity with a decrease in habitual pathogenic powers is the essential feature of this tabulation.

Turning now to the actual measure of the relative proteolytic powers of these bacteria, it is found that the more pathogenic types, *B. dysenteriae* and *B. typhosus*, utilize but little protein in their dietary; they do not break protein down deeply or extensively. The amount of protein breakdown is fairly measured by the increase of the ammonia content in the medium in which they are growing. The accompanying table, and particularly the chart, show graphically the amounts of protein broken down by these various organisms in milligrams of ammonia per one hundred centimeters of broth. Two kinds of broth are included: One, sugar-free, contains the usual protein constituents of standard nutrient bouillon. The other, dextrose broth, contains precisely the same constituents as the plain broth, and in addition one per cent. of chemically pure dextrose. The sugar-free broth, containing only protein and protein derivatives, necessitates a purely protein diet for the bacteria grown in it. The dextrose broth offers a choice between protein and carbohydrate. The structural requirements of the bacteria must be obtained from protein; the fuel requirements may be obtained theoretically from either protein or sugar. The results of these paralleled experiments, made under precisely the same conditions, illustrate forcibly and quantitatively the nature and extent of the sparing action of sugar for protein, as measured in terms of protein decomposition.

The curves are accurately constructed from analytical data as follows (see Kendall and Farmer, *loc. cit.* for further information):—

Uninoculated plain and dextrose broth is analyzed for its ammonia content. The amount found is plotted as zero (0-0). The ordinates in-

dicate milligrams of ammonia per one hundred cubic centimeters of broth, the abscissae duration of the experiment in days. The light line (O-A) represents the amount of ammonia formation (increase over that of the uninoculated control) in dextrose broth. The heavy lines (O-B to O-F inclusive) indicate the corresponding ammonia increase over the uninoculated control in sugar-free broth. The sugar broth provides the bacteria with both carbohydrate and protein; the plain broth provides protein alone. The results: the organisms considered in this connection are *B. dysenteriae* (Shiga and Flexner), *B. typhosus*, *B. paratyphosus* alpha and beta, *B. coli*, *B. proteus* and *B. mesentericus*. All of them utilize dextrose, forming in it either acid or acid and gas. The curve shows that all of them produce about the same amount of ammonia in sugar broth, indicated by the line O-A. This amounts to about two milligrams of ammonia per one hundred cubic centimetres of broth in eight days. This ammonia represents the waste from the protein broken down by these organisms for their structural needs; inasmuch as they are all about the same size, it is not wholly surprising that this "structural waste" should be about the same for all. The corresponding amounts of ammonia broken down in sugar-free broth are indicated by the lines O-B to O-F inclusive. The lines have the following significance: O-B represents the amount of ammonia produced in sugar-free broth by *B. dysenteriae*, *B. typhosus* and *B. diphtheriae* respectively. It is the same practically for all of them. The line O-C represents similarly that of *B. paratyphosus* alpha and beta: O-D *B. coli*, O-E *B. proteus* and O-F *B. mesentericus*. The amounts of ammonia formed by these bacteria in sugar-free broth are very significant. The more pathogenic bacteria, typhoid-diphtheria, form but little ammonia, representing but little proteolysis; the more saprophytic forms, on the contrary, as *B. proteus* and *B. mesentericus*, break protein both deeply and extensively. This is in harmony with their observed cultural and chemical characteristics.

It might be assumed that bacteria grown in the sugar broth grew very little, and that the growth in the sugar-free broth was very luxuriant. The reverse is more truly the case. For example, *B. coli* at the end of six days, numbered about 2,000,000,000 living organisms in sugar broth, while there were 1,200,000,000 *B. coli* (living) in the plain broth. The sugar broth contained more bacteria by actual count than the plain broth, and yet the ammonia content was much less. The utilizable sugar, therefore, appears to have shielded the protein from bacterial attack. The "structural" requirements are very small, as has been outlined above. At first sight this relatively small difference in protein breakdown in both sugar and sugar-free media by the more strictly pathogenic organisms might seem disappointing; it might appear that these pathogenic bacteria, rather than the more saprophytic forms would be those which should bring about a deep-seated change in the protein molecule. A moment's reflection, however, will make the facts as they are observed in these experiments quite logical in the light of what is known of these organisms clinically. Deep-seated protein breakdown means extensive liquefaction of protein; if the typhoid bacillus were to break down protein to any such degree, the resulting lesions would be quite fluid, due to the accumulation of soluble protein decomposition products around the foci of bacilli. A huge pus pocket would accumulate in the spleen in a case of typhoid, for example, and such is not the case. There is little indication of proteolysis in uncomplicated lesions due to this organism. The slight sparing action of dextrose for protein also appears disappointing, amounting as it does merely to about three times the total amount of protein break down in sugar-free media. This slight sparing action is very important, however. The diphtheria bacillus forms strong toxin in sugar-free media, none in sugar media. A thousandth of a cubic centimetre of this toxin (from sugar-free broth) will kill a guinea-pig weighing 250 grams in four days. The corresponding sugar-containing broth will not kill guinea-pigs with many times this dose. Here the very slight difference in action on protein results in a most striking difference in the toxicity of the resulting product; the one (sugar-free) being strongly toxic; the other (sugar containing, but the same protein) practically atoxic in any amount. The sugar-free broth contains the products both of structural and fuel waste from protein decomposition, since the bacteria must get both their structural and fuel material from protein. The sugar-containing broth appears to contain the same "structural" waste products of protein origin for reasons given above; the fuel requirements, however, are derived from fermentation of dextrose. The structural requirements being practically the same, it appears to be logical to attribute to the utilization of protein for fuel rather than the utilization of sugar for fuel the observed toxic products. It will be remembered that only nitrogen-containing products of bacterial origin are capable of stimulating the formation of antibodies according to our present-day knowledge, hence the sparing action of sugar for protein is of more than academic interest; it has a real clinical bearing.

A few instances drawn from many fields of bacterial activity in which this sparing action of carbohydrate for protein plays a prominent part are introduced here by way of illustration.

1. It has long been known experimentally that the addition of sugar to the applied water of sand filters will tend to inhibit nitrification. Sand filters owe their efficiency largely to the action of microörganisms, chiefly bacteria, which collect on the surface of the sand, forming a continuous layer, through which the water must pass. This layer, the "Schmutzdecke" digests, as it were, the water as it passes through the

bodies of the organisms composing it, reducing the organic matter from various stages of complexity successively through albuminoid and free ammonia to nitrites, and finally nitrates. This process is a proteolytic one complex to be sure, and involving symbioses before the process is complete, which are not fully understood. The addition of sugar to the water simply furnishes to those bacteria which can use it a carbohydrate source of fuel, which in conformity with what has gone before is promptly utilized by them. Nitrification therefore ceases. This inhibition of nitrification has frequently been observed where large amounts of brewery waste are run directly upon sand filters. Brewery waste is rich in carbohydrates, which are promptly used by the bacteria of the "Schmutzdecke" in preference to the nitrogenous constituents of the water. Here again nitrification is interfered with as long as sugar is present in the applied water.

2. The addition of sugar to eggs prior to freezing them for shipment is another example of the protective action of sugar for protein. Ordinarily such eggs do not become "rotten, filthy and decomposed," but ferment instead. The government failed to realize this phenomenon when several cans of eggs containing from 10,000 to 10,000,000 *B. coli* per gram egg were seized because they were supposed to be rotten on the grounds that colon bacilli were found in them in large numbers. Chemical analysis failed to reveal the slightest increase in putrefactive products in these eggs, in spite of the high content in fecal bacteria, either qualitatively or quantitatively. These eggs were perhaps slightly acid, but there was no proteolysis. The eggs were not measurably decomposed.

3. The actual composition of bacteria themselves plays a theoretical part in the manufacture of bacterial vaccines. Vaccines are used extensively in certain fecal types of disease; such vaccines should possess the maximum immunizing value. If the presence of utilizable sugar in considerable amounts in the media in which such bacteria are grown will reduce the nitrogen content of their bodies about one-fifth, it would be logical to grow them in a protein medium free from sugars, at least until the exact influence of this variation in nitrogen in terms of immunizing power can be determined experimentally.

4. The use of sugar-free media, to which are added definite amounts of various sugars is made use of very extensively in the cultural diagnosis of bacteria. It is obvious that such media must be freed from all sugars prior to converting them into media containing definite sugars. The preference of bacteria for utilizable sugar explains very simply and directly the fact that bacteria "ferment" certain of these carbohydrates. If they "ferment" certain sugars, the reaction of the medium becomes progressively acid; if they do not "ferment" these sugars, the reaction tends to become alkaline. The selective action of these organisms for specific sugars is the basis for these tests. The same protein is offered in every case. Bacteria which cannot utilize the sugars must act upon the protein.

5. The bacteriology of the intestinal tract is perhaps the most complex, and the most important field for the study of bacterial metabolism, so far as medicine is concerned. The relations of intestinal bacteria to diet, to acute and chronic infections of the alimentary tract and to diseases of obscure origin which are empirically found to be influenced by diet represent a phase of the subject which is practically untouched.

The normal nursling has a distinctive and monotonous flora, fermentative in character, which is called into existence by the monotonous diet (breast milk), which contains about four times as much carbohydrate (lactose) as protein. The organisms represented, *B. bifidus* and *B. acidophilus*, are among the best known examples of almost purely obligate fermentative bacteria. They cannot utilize protein to advantage for fuel purposes. The normal adolescent and adult have a very different bacterial flora in their intestinal tracts. The diet is varied, the proportion of carbohydrate to protein becomes more nearly equal, and the flora is composed largely of bacteria which can readily accommodate their metabolism to these variations in the composition of the food. The most common organism is *B. coli*. This organism is one of the most labile in its ability to accommodate its metabolism to dietary alternations in the intestinal tract. Qualitative changes in diet in normal adults are less likely to be accompanied by visible changes in the morphology of the intestinal flora than in infants, for this reason. *B. coli* adapts its metabolism to a varied diet, while *B. bifidus* is less plastic in this respect. Marked changes in the type of microbic decomposition of foods in the intestinal tract, therefore, can be brought about without a corresponding morphological deviation in the bacterial flora. The addition of carbohydrate, for example, to the diet of the host may result in the suppression of indican in the urine. The colon bacillus, which formed indol from the protein of the diet, now produces lactic acid from the added carbohydrate. Morphologically, the organisms are the same whether they are forming indol or acid. Hence it will be seen that the chemistry rather than the morphology of the flora must be called upon to explain the changes in the excretions. Indicanuria is a much discussed and little understood result of intestinal processes. The formation of indol is almost wholly due to bacterial action upon protein. *B. coli* and *B. proteus* appear to be the chief organisms concerned. Indol is produced whenever protein is in considerable excess in the intestinal tract: stasis, which ordinarily results in a differential absorption of carbohydrate; excessive feeding of protein; deficient carbohydrate in the diet, or the administration of carbohydrate which is easily and rapidly absorbed (as dextrose)—all may lead to indol formation. Excess of carbohydrate, prompt protein absorption, or diarrhea all tend to diminish indol formation

and absorption. By careful analysis of these factors it is usually possible to determine the salient features involved in any given case, and to institute appropriate measures to combat them.

Bacterial infections of the intestinal tract offer a wholly new field for direct therapy along the lines indicated. It is practically impossible to sterilize the intestinal tract, either by chemical means or by prolonged fasting. Even during starvation there is a reduced, but nevertheless considerable accumulation of intestinal secretions and detritus which provide sufficient food for very considerable number of bacteria. It is a noteworthy fact that *B. coli* can utilize this intestinal waste, and experience indicates that even bacteria of exogenous origin thrive upon the secretions and body tissue when all food is withheld for days, consequently sterilization of the intestinal tract, either in health or disease, is not practicable. Prof. F. C. Shattuck realized this long ago. In 1897 he published an article on "Diet in Typhoid,"[9] in which he maintained that judicious feeding was the proper course to pursue in this disease, on the theory that the conservation of the patient's strength was an important factor in bringing the case to a successful termination. The relatively slight loss of weight and the lowered mortality observed in his series of patients are mute witnesses of the correctness of his theory.

It must be conceded that there is no specific treatment for typhoid—indeed, with the exception of those diseases in which the acute causative factor is a toxin which can be neutralized by a specific antitoxin, as in diphtheria, this is a very general statement applicable to almost all bacterial infections. Chemotherapy has made considerable progress along certain lines, but so far the diseases of spirochetal or trypanosomal origin are the only ones in which definite results have been obtained. Careful nursing and supportive treatment are important, but non-specific adjuncts to nature which, after all, is the active force in combatting bacterial infection.

Before discussing the application of the principles outlined above to intestinal diseases, especially acute infections of exogenous origin, as typhoid fever, which will serve admirably as an illustration, a few facts relating to the bacteriology of typhoid can be advantageously considered.

The generally accepted theory appears to attribute the typhoid syndrome largely to the lysis of typhoid bacilli in the blood stream with the liberation of endotoxins. These endotoxins (alien protein) bring about a series of abnormal reactions, anaphylactic in origin, which give rise to many of the symptoms. The tendency is to explain most of the symptoms and results of typhoid infection on this basis (Coleman and Buxton[10]).

It is worthy of note that an enormous number—billions—of killed typhoid bacilli injected into the body as a vaccine will not reproduce a symptom complex resembling typical typhoid fever in man, even when these injections are spaced at intervals which should theoretically induce an anaphylactic reaction. The disturbance produced is usually very mild and transitory in character, certainly not comparable pathologically or clinically to typhoid. Living typhoid bacilli and *only* living typhoid bacilli do that. This implies that the development of typhoid bacilli *in vivo* plays an essential and important part in the production of the typhoid state. For two weeks (the incubation period of typhoid fever) changes which partly, at least, are of an unknown character are going on. During this time the natural defences of the body are partially overcome, and the typhoid bacilli get the body on the run, as it were. The nature and extent of the damage accomplished in this incubation period have an influence on the subsequent clinical course of the disease which cannot be predicted or estimated. Ordinarily this initial damage is completely lost sight of.

One of the striking objective events of a typical case of typhoid fever is a noteworthy loss of the body weight, which results in emaciation and is due to the destruction of body protein. This loss of weight is probably of a triple origin—a febrile loss due to the febrile reaction, a loss due to the restriction of the diet, that is to say, partial starvation, and a toxic loss due to the action of toxins of bacterial origin. It is probable that the febrile and toxic losses are phylogenetically closely related. Neither the febrile loss nor that due to partial starvation can account for all of the observed diminution in weight. Even absolute starvation on water alone will not result in emaciation so marked as that exhibited by a typical typhoid patient. It is, therefore, logical to attribute some importance to the action of bacterial toxins in this connection. A normal man who has been starved will regain weight rapidly on a purely protein diet. A typhoid patient, on the contrary, will ordinarily not gain weight, but will actually lose weight on such a diet; the patient appears to be distinctly harmed, and the symptoms aggravated by a purely protein diet. Relative starvation is preferable to pure protein in this disease. In this sense the typhoid patient differs markedly from a normal individual. It is very interesting to read the various items of the Shattuck diet in this connection. There is in it a very decided preponderance of carbohydrate foods. Recently Coleman[11] has studied the effects of various foods on typhoid patients, and he finds that an excess of carbohydrates in the diet actually seems to conserve body weight Coleman and Shaffer[12] studied several cases of typhoid chemically and clinically, and showed definitely that a diet rich in carbohydrates caused a retention of body protein as shown by the nitrogen balance and the weight curve. Their conclusions are as follows:—

"1. By the use of diets of high caloric value and especially rich in carbohydrate it is possible to retard and, if the carbohydrate supply be sufficient, to prevent the febrile loss of body-

protein-nitrogen in subjects of typhoid fever.

2. By such dietetic treatment the "toxic" destruction of body protein, as well as the destruction due to simple pyrexia in this disease may, therefore, be *either prevented or compensated for.*

3. The behavior of kreatin and of total sulphur in our experiments appears to show that febrile destruction of body protein, including the action of pyrexia and of toxins, is actually retarded or even wholly prevented by the intake of sufficient carbohydrate.

The prevention of the febrile loss of body protein is, therefore, probably not to be explained by a mere compensatory retention of food protein.

4. The results support the belief that in fever there is a greater need for carbohydrate; that if the food does not contain sufficient carbohydrate the body protein is drawn on perhaps to supply energy in an available form; but that, if sufficient carbohydrate be available from the food, the body protein is protected from the febrile destruction.

5. If, as seems probable from our results, the "toxic" destruction of body protein may be prevented by large carbohydrate intake, the mechanism of this "toxic" destruction cannot be a direct (poisonous) injury to body cells and proteins.

6. To maintain nitrogen equilibrium in typhoid fever the food must contain 10 to 15 gm. nitrogen in addition to much carbohydrate. Our experiment shows no advantage from a further increase of food-protein."

In the light of the ill effects of a purely protein diet this is suggestive. Physiologists have long known that carbohydrate "spares the body nitrogen," consequently physiological loss of weight due to simple starvation should be largely prevented by such foods. The amazing fact remains that in Coleman's cases not only was the loss of weight attributable to partial starvation prevented, but in addition practically all the loss attributable to the febrile reaction and to the toxemia was also markedly reduced. The general symptoms of toxemia were greatly modified.

The explanation that presents itself to account for this reduction in toxemia when the patient is on a liberal diet containing an excess of carbohydrate is a simple one. The maintenance of a high physiological sugar content in the body, and consequently in the blood, influences the metabolism of the typhoid bacilli directly, limiting their action on the body tissues. The typhoid bacilli get their *fuel* energy largely from sugar (dextrose), although their nitrogen requirements are necessarily of protein origin. The waste from the utilization of carbohydrate by bacteria may be irritative, practically never toxic. It is almost certain that the waste products of their *structural* requirements are of comparative little magnitude. The bacterial waste from *fuel* needs, particularly when this fuel waste is derived from protein break down (body tissue in this case) is the more dangerous factor. It is comparatively simple to understand the changes in the metabolism of the bacteria in the intestinal tract where they are directly in the path of the carbohydrate that is added to the diet, and in this connection the change in the nature of the products of metabolism of the normal endogenous intestinal flora may well play a part. *B. coli*, for example, forms lactic acid in place of indol, if sugars are available. This may lighten the load on the liver and kidneys, since practically no indol is formed to be excreted through the urinary tract. In the body itself, on the contrary, the typhoid bacilli might seem at first sight to be widely separated from utilizable carbohydrate. Anatomically, typhoid bacilli cause focal necroses in the various organs of the body, but it should be remembered that necrotic tissue is rather readily permeable to crystalloids. It is very probable that the dextrose of the blood, which is maintained at the highest physiological level on a diet rich in carbohydrate (carbohydrate absorption is only slightly impaired in typhoid) seeps into the areas where the organisms are active and therefore reaches them without difficulty. This dextrose is utilized by the typhoid bacilli in preference to the tissue of the host for their fuel; the character of the products of fuel wastes consequently become acid in place of being alkaline, nitrogenous and toxic, as would be the case if the dextrose content of the blood were diminished. This explanation involves no theoretical difficulties, and the observed clinical results of a liberal carbohydrate diet in reducing the loss of body protein (loss of weight), in suppressing the toxic state, and in general favorably influencing the course of the disease are in accord with the chemical and clinical results which have been observed empirically in many cases where this diet has been introduced. Furthermore, this dietary procedure is physiologically correct; it furnishes a simple and direct method for influencing specifically the activities of the typhoid bacillus. Coleman,[13], Crohn[14] and Gardner[15] have reported 174 cases of typhoid fever treated along these lines with a mortality of 12. All except a very few of these patients were charity cases, in whom typhoid is usually somewhat more severe than corresponding cases in private practice.

The importance of small feedings, rather frequently repeated, should be borne in mind in treating typhoid fever from the bacterial point of view. At least a minimal concentration of utilizable sugar should be maintained in the intestinal tract, and in the body as well. Infrequent feedings, even if they are relatively generous, fail to do this because the carbohydrate is absorbed as a rule comparatively rapidly from the tract, leaving a residuum of protein if the bowel movements are not frequent. The abstraction of carbohydrate forces the bacteria to utilize protein, be it body tissue or intestinal residuum.

There are certain limitations and even dangers which might be attributable to a diet rich in carbohydrate. These objections, however, are more theoretical than real. The gas bacillus (*Bact. Welchii*) might become active when there is considerable utilizable carbohydrate in the intestinal tract, provoking a severe diarrhea, or even becoming invasive. This is unlikely to happen unless the food of the patient contains these organisms. Lactose is particularly to be regarded in this connection for this sugar is the one commonly utilized as the principal source of carbohydrate in the various "sugar diets." Lactose is physiologically the best sugar to use, it might be added. Spores of the "gas bacillus" are not infrequently found in commercial lactose, derived from the milk from which lactose is obtained. Sterilization of lactose in the autoclave will ordinarily remove this source of danger. It is almost certain that neglect of this precaution will lead to false ideas of the legitimate use of this and other sugars, not only in typhoid fever, but other diseases where it may be used as well.

Even if a diarrhea associated with the presence of the gas bacillus should become manifest, it can be checked by the administration of a good grade of properly prepared buttermilk, a temporary restriction of the carbohydrate and a proportionate reduction in the remainder of the food. A careful survey of the intestinal flora should suffice to give ample warning of these undesirable complications. So far as the available statistics show, a gas bacillus infection has never been suspected, and certainly not demonstrated following the use of carbohydrate in typhoid fever. Flatulence and tympanites are usually reduced, rather than aggravated by a diet rich in sugars. (For the dietary details, and much valuable information regarding the use of sugars in typhoid fever, see Coleman.)

The blood of diabetics contains an excess of dextrose. From what has been stated it would seem that typhoid fever should be rare in them, or at most occur in but a mild form. It should be remembered that the "natural resistance" of the tissue of the diabetic is distinctly lowered, as is evidenced by the relative frequence of bacterial infection in them. Furthermore, even normal, healthy tissues are rapidly invaded post mortem by bacteria, consequently the exact resultant between the influence of excessive sugar in the tissues on the one hand, and the effect of lowered tissue resistance on the other would be difficult to determine *à priori* in terms of vulnerability to typhoid infection.

In any event, the results of the administration of a diet rich in carbohydrate cannot be judged solely by clinical standards; cryptogenetic changes involving the shifting of metabolism of bacteria and its attending train of chemical readjustments in the host and parasite as well must be correlated with quantitative as well as qualitative measurements before the solution can be regarded as established on a firm basis. This involves the recognition of unexpected factors which purely *à priori* reasoning cannot predict, and which qualitative observation cannot fully interpret.

SUMMARY.

Evidence both qualitative and quantitative, has been presented, illustrative of the nature and extent to which utilizable carbohydrate spares protein and protein derivatives from bacterial attack. The carbohydrate protects protein largely from bacterial break down.

The sparing action is not complete, but it results in the practical elimination of nitrogenous products, incidental to bacterial development, some of which may be toxic, and the substitution for them of substances which are non-nitrogenous, which may be irritative, but probably never truly toxic. This evidence has been introduced here chiefly to indicate how the principle involved may be made use of theoretically in the treatment of diseases of bacterial origin, where the anatomical features of the disease are such as to permit the utilization of carbohydrate by the invading micro-organisms. The object of the diet rich in carbohydrate is twofold: physiologically to provide the patient with a readily assimilable food requiring a minimal amount of digestive energy to prepare it for the tissue needs, and bacteriologically to shift bacterial metabolism from the destruction of body tissue for their food requirements to the utilization of carbohydrate for at least the major part of their dietary needs. This does not directly result in annihilation of the invading bacteria, but it certainly approaches their metabolic reformation. The shifting of metabolism to sugars appears to deprive these microbes of one of their most potent weapons of offense, and forces them to act on the defensive; forcing the parasite to act on the defensive theoretically at least permits the host to rally and to strengthen its defensive and even its offensive powers earlier in the battle. The initial damage, brought about when the host is temporarily overwhelmed by the initial onslaught of the invaders (which is accomplished largely during the incubation period of the disease) cannot be estimated at present, and perhaps cannot be undone. The final struggle between host and parasite can be influenced directly, and favorably.

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COMMON COLDS AND VACCINE THERAPY.*

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IT is timely, at this season of the year, to review the etiology and treatment of that condition which we, with primitive vagueness, designate as "common colds." We talk and write volumes about such rare diseases as leprosy and smallpox, but neglect the omnipresent little colds, with which few diseases can be compared in seriousness.

(BOSTON MED. AND SURG. JOUR.) In an editorial says: "Could the sum total of suffering, inconvenience, sequelae and economic loss resulting from common colds be obtained, it would at once promote this affection from the trivial into the rank of the serious diseases." "Taking cold" like charity covers a multitude of sins from an acute coryza to puerperal sepsis. Even with physicians colds sometimes conveniently "run into" diseases too numerous to mention. How often one hears, "He had a cold and it ran into measles, scarlet fever, pneumonia, tuberculosis, influenza, typhoid fever, malaria, or rheumatism," *ad infinitum*. After the baby was born she "caught cold and had a terrible fever." A fine cloak behind which dirty fingers may be safely hidden. "He had a cold and it settled on his lungs," etc., a common excuse for failure to diagnose incipient cases of tuberculosis.

The phrase "taking or catching cold" is certainly not a scientific one, but it conveys to the minds of most of us a definite train of symptoms usually referable either to the nose, throat, or bronchi. The most common condition is an acute rhinitis, acute pharyngitis or laryngitis. The laity usually mean an acute coryza or rhinitis when using this term.

Are colds due to drafts, emphatically, No! but to infection. Drafts have for centuries borne a bad reputation, much of which is entirely undeserved. The definition of draft in the dictionary is a current of air passing through a channel or small aperture. But defined by our grandmothers it was an uncanny something, stealing upon us unawares from every crack or crevice, to be spoken of with bated breath and avoided like a pestilence at any cost, but which at last caught us no matter how tightly we nailed the windows down. It is impossible for any one to pass a single day without exposure to drafts, unless he seals himself in a glass case. So-called ventilation means a draft. Everytime you go through a door you are in a draft, everytime you ride in an automobile or open car you are in an extremely strong draft, in fact, drafts are, like the poor, always with us, yet we do not always catch cold. The only thing one needs to fear from so-called drafts is the temporary discomfort or congestion of the mucus membrane from the cold, or possibly a stiffening of exposed muscles, unless the draft be germ laden, when a cold may be attributed to a draft. This popular bogy "drafts" is fast proving an alibi in the form of the ubiquitous bug.

"Colds seem to be the exclusive privilege of civilization. The human race, probably, did not snuffle much until it lived in houses and wore clothes. Not fresh air, but the want of it, is the cause of many diseases, as fresh air with sunshine is Nature's disinfectant, and none better will ever be invented."

The drafts to which colds are often attributed are in reality the result of the beginning coryza, one of the first manifestations of which is the subjective chilly sensations, effect rather than cause, due to slight increase in bodily temperature. Presumably this phase of the disease gave rise to the false name "colds." The bacteriologist will grant you that cold draughts, wet feet, etc., may result in a hypersecretion of mucus on the mucous membrane, supplying an excellent culture medium upon which the bacteria, commonly present throughout our breathing highway, grow very rapidly.

The tuberculosis patient does not "take cold" while undergoing the fresh air treatment, although he and his friends were sure the exposure would result fatally. Open-air treatment of pneumonia, now universally adopted, would seem to eliminate cold alone as a factor in the causation of respiratory troubles. If one contrasts the condition of a pneumonia patient indoors and out, one would not question the therapeutic advantages of fresh air, which costs nothing, and is equally available for the rich and poor. Careful perusal of the reports of Arctic expeditions will show that "common colds" are practically unknown in the Arctic regions, where cold drafts abound, but the temperature is not conducive to bacterial longevity.

In summer we have very few colds. Why? We certainly have more drafts with all the windows and doors open. It is because we have better ventilation, wear lighter clothing, ride in open cars, do not congregate so often in ill-ventilated theatres, air-tight churches, railroad trains, etc. We spend most of our time either outdoors or else in buildings where the heat makes proper ventilation (which means drafts) compulsory. It is the individual who coddles himself, hugs the radiator, wears mufflers, chest protectors, etc., who most frequently has to consult the physician for respiratory infections.

The man spending his evenings in the smoke beclouded, sealed club-room, with his boon companions, who attributes his frequent colds to the chilling which he feels on going into the so-called night air, is very much mistaken. Our heat-regulating mechanism is sufficiently finely adjusted to take care of these sudden changes in temperature, otherwise we would "take cold" after every cold bath, instead of experiencing that fine glow which invariably follows a healthy

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reaction. No amount of draft will produce a cold unless there are present some of the germs so prevalent in the respiratory tract.

Brady says, "Cold has no demonstrable etiological relation to respiratory disease, and that clean drafts are not only harmless but beneficial. The phrase "catching cold" is meaningless, misleading, and should become obsolete. The groundless fear of cold constitutes a hysteria. So far as we know, the true predisposing factors of respiratory disease are dietetic sins, unhygienic clothing, over-heated apartments, and defective ventilation. He further states that prophylaxis consists in directing intelligently man's instinctive effort to secure bodily comfort together with reasonable isolation of every case of respiratory disease."

The profession is rapidly coming to consider a "common cold" as an acute bacterial infection of the mucous membranes of the nose, pharynx, tonsils, larynx, trachea, or larger bronchi.

Colds are transmitted from one individual to another, either direct or indirect contact, just as diphtheria is contracted from diphtheria. If one person has a cold some one or all of the members of the household may contract it from him. There are unquestionably epidemics of simple colds, which run through schools, offices, institutions, etc. During the act of sneezing many myriads of germs are forcibly thrown into the air. Someone has aptly said that sneezing or coughing without the intervention of the handkerchief was a crime against society, as well as a breach of etiquette.

The disease is transmitted by sneezing, coughing, kissing, etc., very frequently among children by the promiscuous use of the same handkerchief. To prevent colds a judicious isolation of cases would work wonders.

Especially to be emphasized is the advisability of separating snuffling children from their fellows in school, not only as a means of preventing the spread of colds, but as a means of eliminating those diseases called by Dr. Hutchinson the Herods of today. One is struck by the difficulty of differentiating a so-called common cold from the prodromal catarrhal symptoms of measles, scarlet fever, whooping cough, or diphtheria; hence, if every sniffling child was sent home by the school nurse, not only would that individual child be benefited by the timely rest, but it would be a tremendous factor in eliminating epidemics of the contagious diseases. One might ask, When is a cold not a cold? The answer being, when it is measles, whooping cough, scarlet fever or diphtheria.

"In about half of seven thousand tabulated cases of pneumonia the disease followed a so-called cold; in one-eighth of the cases, an attack of influenza, and in about as many more cases the cause was divided between bronchitis and so-called exposure."

It is a woefully familiar statement in the history of tuberculosis, that the trouble began with a bad cold.

There is no specific germ of cold, but L. Emmett Holt found that the bacillus influenza played an important part in respiratory infections, being second in importance only to the pneumococcus in the winter, but practically disappeared in the summer. He found it present more frequently associated with symptoms of the lower respiratory tract and with mild general symptoms.

The incidence of the bacillus influenza varies in different years, being much more frequently encountered during some winters than others. Bacillus influenza soon dies out in cultures, so has to be sought carefully and prayerfully.

We have unfortunately contracted the habit of attributing to the bacillus influenza all severe coryza, etc., regardless of the bacteriological facts in the case, so that "grippe" has become our winter dumping ground, as malaria is our summer catch-all. That we may have a symptom complex, which clinically is not to be distinguished from influenza, but which is due to other organisms, generally the pneumococcus, is undoubted.

Curschman failed to find the Pfeiffer or influenza bacillus in 49 out of 77 cases of clinically typical grippe.

Leede brings forward many cases to prove that influenza, as known to the practitioner, may be excited by different bacteria, of which the pneumococcus is the most important.

The editor of the A. M. A. says, since the pandemic of influenza in 1889-90, epidemics of coryza, sore throat and bronchitis have usually been called influenza because of the characteristic contagiousness of the infection, the persistence of symptoms, prostration, etc. But he says this diagnosis has not been confirmed by bacteriologists. Lord found 30% of cases of ordinary coryza to contain influenza bacilli, while only 6% of so-called cases of grippe yielded it. The most prominent organisms found were the pneumococcus, bac. segmentosus and streptococcus.

In acute pneumonia, the pneumococcus predominates, often associated with the staphylococcus and sometimes the bacillus influenza. Streptococcus, while often present, is usually in small numbers. The character of cultures from bronchitis closely simulate those of pneumonia.

In coryza, the pneumococcus is by all odds the most frequent offender, but the staphylococcus, micrococcus catarrhalis, and a pseudo K. L. are frequently found, and often associated. In addition, the bacillus segmentosus, a bacillus of the diphtheria group, which is believed to be concerned in the production of common colds, is frequently present.

Allen speaks of this germ as the coryza segmentosus, because it is so often encountered in acute coryza.

In chronic rhinitis I have sometimes isolated the ozena bacillus, the colon or the tetragenous. No specific micro-organism has been found, hence no one germ can be termed the "cold

germ," as different bacteria predominate in different seasons and individuals.

Colds are self-limited, which means that being of bacterial origin an immunity is produced in the blood against the causal organisms. This acquired immunity may be and usually is of rather brief duration.

Having established the fact that colds are infections and due to the action of bacteria, the only logical method of treatment presenting itself is one which increases the resistance of the patient to these invading germs. This desideratum is not obtained by any or all of the coryza or rhinitis tablets on the market, neither will it result from the use of the venerable prescription, namely, place your hat on the bedpost, and drink rock and rye until you see two hats, but it is produced by the active immunization of the individual against the organisms causing the trouble.

By immunity we mean that condition which prevents the gaining of a foothold by germs or bacteria in the living body, or that condition which overcomes and neutralizes their harmful products, or destroys the organisms themselves. This active immunity is obtained by means of vaccines or bacterins, which are simply sterilized emulsions of the causal bacteria, standardized and injected hypodermically. Vaccines stimulate the organism to the production of antibodies and opsonins, which prepare the germs for their destruction by the leucocytes. Bernard Shaw in his play, "The Doctor's Dilemma," cleverly defines an opsonin as "what you butter the disease germs with to make your white blood corpuscles eat them."

The initial step in the use of vaccines is, of course, a careful determination of the nature of the particular infection, without which an attempt to use vaccines would be absolutely futile.

METHODS OF TAKING CULTURES.

From the anterior nares, if the secretion is abundant, fairly good cultures may be obtained by instructing the patient to blow the nose thoroughly, then passing a curved pliable swab upwards and backwards into the posterior naso-pharynx. Dr. Holt recommends cleansing the mouth with sterile water, then pass a curved swab behind the soft palate into the naso-pharynx. Cultures from bronchitis are obtained by inducing a hard cough by pharyngeal irritation, and catching on a swab the resulting secretion. One swab is utilized for making successive inoculations on blood agar, while from another, smears on slides are made for the determination of the character of the bacterial flora, as a control for the cultures. This is quite important as forms of bacteria are sometimes present on the slides, which are absent from the cultures, either because the media used was unsuitable or they were overgrown by the more hardy but often less pathogenic varieties, in which case another effort must be made to isolate them. In infections of the respiratory tract one seldom, if ever, obtains pure cultures. Usually, however, there is one germ which predominates, hence, is considered as the etiological factor, but since the others may be and probably are contributing causes, it is best to incorporate them in the vaccines.

In chronic conditions of the nose and throat it would be folly to use vaccines to the exclusion of other necessary measures, such as the correction of abnormalities of the air passages, removal of growths, etc. Proper hygiene of the mouth should early be taught to all children, including correct methods of respiration. The toilet of the nose should frequently be made by douching with mild antiseptics, or salt and water to remove the germ-laden accumulation in the nares. Attention to diet should not be neglected in our efforts to cure the sufferer from chronic colds.

Vaccine treatment of colds should be especially directed to the prevention of future attacks. The earlier the treatment is begun the shorter will be the duration of a given cold, and the less danger from extension to adjacent parts. In an acute attack of coryza, bronchitis, etc., a dose of stock vaccine should be administered at once, until an autogenous one can be prepared. It is best to keep on hand such a stock vaccine, containing numerous strains of each of the germs commonly responsible for respiratory affections. Such a one we have labeled "The 57 varieties." It is, of course, a sort of shotgun prescription: some one of the shots, however, are pretty sure to strike the target. The others do no harm, but serve to increase the individual's immunity for the germ which he might possibly pick up next time.

The best time for the administration of the first dose is in the evening when the patient can go to bed, because the immediate effect is to slightly lower resistance. By the next morning, however, the immunity factory has usually turned out sufficient immune bodies to produce a definite improvement in the patient's condition. If no amelioration in the symptoms has been noted, a second but larger dose may be given at the end of twenty-four to forty-eight hours. If the autogenous vaccine is ready, it should be substituted at this time. Oftentimes only one dose is required to put the repair crew in action with their ever ready "repair kit," the leucocytes. If further treatment is necesasry the vaccine should be administered at intervals of three to five days.

The use of vaccines or bacterins in these acute catarrhs shortens the attack very materially. If taken at the onset we often entirely do away with the long drawn out stage characterized by a thick mucopurulent discharge. They minimize the dangers of complications and extension to bronchi and lungs. They also influence very favorably the general tone of the individual, many people actually increasing in weight under vaccine treatment.

In the treatment of chronic catarrhs by vaccines it is essential that any infected sinuses, etc.,

etc., be adequately treated surgically, as the medication is not designed to supplant surgical measures, but to supplement them.

An occasional bacteriological examination, during the course of subacute or chronic affections, is quite an important part of the therapy, to indicate the presence of a newly acquired infection as, of course, the immunization by the pneumococcus would not prevent the entrance of the streptococcus, etc. While bacterins are invaluable in the treatment of acute and chronic infections of the nose and respiratory tract, and are attended with almost constant success, it is as a prophylactic that they give most brilliant results.

The immunity occasionally lasts a year or more, but usually from four to six months is the average duration. To the individuals subject to recurrent colds, as many are during the winter months, it proves a great boon. In these cases it is well to make an autogenous vaccine from the first cold, to which may be added, if so desired, the other "cold germs" from stock. This may be given in increasing dosage with seven-day intervals, until four to six doses are administered, which generally produces sufficient immunity for several months. If one prefers to wait until the onset of the next cold before beginning the treatment, the attack can almost invariably be aborted and immunity completed as described above. This procedure may be repeated at the end of six months, or delayed until such time as necessity demands.

The dosage which seems to give the best results are pneumococcus, M. catarrhalis, M. Tetragenous, each 125,000,000; Streptococcus, 50,000,000; Bacillus influenza, B. septus, B. Friedlander, about 100,000,000; Staphylococcus, 400,000,000 to 800,000,000. The vaccine should be prepared so that eight minims carries the requisite number of sterile germs, as larger amounts of fluid are more apt to produce local reactions.

The best site of inoculation is deep into the deltoid muscle after having sterilized the skin by means of alcohol or iodine. The hypodermic syringe should be sterilized by boiling, or by immersion for five minutes in alcohol 70 to 80%.

The negative phase or reaction has to my mind been over-estimated. Very occasionally one gets a little general reaction, such as one or two degrees of fever, slight malaise, feeling of fullness in head, but those who react in this way often give the most rapid and brilliant cures. It is a question whether this should be considered a reaction, as such an elevation of temperature may frequently occur in the usual course of an acute infection. The patient occasionally tells you that his symptoms were slightly aggravated a few hours after the first injection, but this is transitory, disappearing in ten to fifteen hours.

As prevention is the keynote of present day medicine, I would suggest the use of diphtheria vaccines as a prophylactic during seasons of epidemics in schools, or institutions, just as we now use the antityphoid vaccination. It would produce a more lasting immunity than the use of antitoxin for this purpose, obviate any danger from subsequent anaphylaxis, and be much cheaper.

Through the courtesy of Dr. Kate C. Mead and Dr. William E. Fisher I am permitted to report the following cases, for whom vaccines were prepared in this laboratory:—

Acute coryza, eighty cases were treated with excellent results in seventy-two, six individuals were unimproved, while the other two failed to return so were probably cured.

Chronic catarrh or rhinitis, thirteen cases treated with marked improvement in twelve, and some improvement in one.

One case of ozena responded very well to prolonged treatment by autogenous vaccine.

Four cases of chronic bronchitis. Decided improvement in three, and cure in one.

Nineteen cases of hay fever. One patient showed marked improvement, and was kept quite comfortable during the entire season. Next year she had no return of her trouble. Four showed no effect from the vaccines, while the others presented considerable improvement.

Six cases of bronchial asthma. Four showed considerable improvement, evident by shortened attacks, with increasing length of the interval between paroxysms. Two were unaffected by treatment.

One case of acute tonsillitis, cure after one dose.

Three cases of chronic tonsillitis, cure with two to four doses.

None of the cases under personal observation showed any rise of temperature following the injection of the vaccine.

In a personal communication Dr. Mead stated that the coryza vaccine was given in cases of either simple cold and sore throat, or of true grippe. In most cases where the vaccine was given on the first day the cold was aborted at once. If the treatment did not begin until the second or third day, several doses were necessary.

The studies of recent years have taught us to look with considerable respect upon the all too prevalent infectious cold as a far from trivial affection, but one capable of inflicting serious injury upon its numerous victims. If we could only bring ourselves to a realizing sense of the importance of these common forms of infection, and face the question fairly and squarely, we would institute a campaign to prevent colds, by proper ventilation, hygiene, the reasonable isolation of cases, and prophylactic immunization of those subject to cold, which would materially decrease our fatalities from pneumonia, tuberculosis, measles, scarlet fever, and whooping cough, not to mention the lesser benefits arising from increased efficiency and personal comfort. The best way to cure colds is not to catch them.

SUMMARY.

1. Colds, so-called, are unquestionably due to infection by micro-organisms.
2. Colds are contagious.

3. Colds can be largely prevented by reasonable isolation of every case, and preventive inoculation.

4. Colds can be aborted or their course shortened by vaccine treatment.

5. The treatment of acute and chronic inflammation of the respiratory tract by vaccines is specific.

6. A symptom complex resembling influenza may be due to other organisms.

It is only too true that one swallow does not make a summer, neither do a few cases prove conclusively the value of a new method of treatment. It is, however, my firm conviction that with a properly prepared vaccine, containing the etiological germ, administered with proper dosage, and intervals, success will always attend this method of treatment.

The doctor who off hand condemns vaccines has either never used them, has not mixed them with brains, has expected them to do the impossible, or he has not had the infecting germ in the vaccine used.

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AN ETIOLOGICAL FACTOR IN CARCINOMA AND ITS POSSIBLE INFLUENCE ON TREATMENT.

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FOR more than a year an investigation on the etiology of malignant tumors has been under way and is at present being actively prosecuted. While the results obtained up to the moment are too few in number and too indeterminate in character to warrant any positive statement, the author feels that the facts already elicited are of sufficient significance to render advisable their presentation to his many fellow-workers in this most important field. For this reason the following brief statement of the experiments has been prepared.

It is a well authenticated fact that these tumors are found most commonly in individuals in the years of waning activity. That is to say, the appearance of malignant growths is synchronous with the marked metabolic changes associated with the other retrogressions of advancing years. With the diminution of the metabolic one anticipates a similar decrease in the purely excretory functions. So long as the change in one parallels that in the other, the equlibrium of the earlier years is maintained. But if through some cause the excretory function suffers a more rapid impairment, an accumulation of waste products in the system must inevitably result. Such an accumulation could operate only unfavorably upon the general organism and not impossibly might produce in given groups of cells a morbid activity producing other and deleterious wastes. Further, should some extraneous cause operate to produce waste—and possibly poisonous—matter in excess of the capacity of the impaired eliminative machinery, the result might be the same.

In connection with this latter thought, another important consideration, complementary to the foregoing, presents itself. It is generally conceded that many of the malignant growths are primarily of traumatic origin. Traumatism must be thought of in its broadest sense; the filling up of a gland causing mechanical pressure, the formation of scar tissue—in short, anything that tends toward irritation. Wherever there is injury, nature rushes to the front; greater cellular production takes place, the extent depending upon the health of the individual. If, however, the control of this production be abnormal, the increase may be so great as to cause pressure which, in turn, breaks down the surrounding tissue by affecting the blood and nerve supply. Under certain conditions these degenerative changes may result in a further production of deleterious chemical compounds. It has been established that certain waste products have a decided action on the inhibitory centers. In the event of the condition just mentioned, cellular production might be subject to constantly decreasing control resulting in a constantly increasing velocity of growth. Thus directly through the impaired elimination of normal waste, or indirectly by the formulation through exogenous causes of abnormal waste, groups of cells might be excited to a pernicious activity. This in turn, might be productive of other deleterious wastes through which the control of nerve centers regulating cell growths might be injuriously affected and the exercise of their function inhibited. Finally, such inhibi-

tory effects not improbably would show progressive characteristics as the influence would propagate its own cause.

In any case, that irritation is a factor in the causation of malignant tumors may be regarded as well established. But this in itself fails to resolve the main problem. One might argue that the irritation or trauma might lower the resistance locally and thus offer a focus for bacterial or parasitic development. Equally well might it be assumed, as has already been said, that such irritation was the genesis of abnormal cell activity, in the course of which toxic substances would be formulated. Should these toxins act upon nerve centers inhibiting their control of cell growth, the abnormal increase in the rate of proliferation would induce an extension of the traumatic condition which was the original cause. Thus the condition would be self propagating and its rate of progress limited only by such factors as the rapidity of elimination or destruction of the toxic substance or substances, the resistivity of the nerve centers as determined by general bodily health and other similar antagonistic effects. Further, such an hypothesis would serve as well to explain such sequelae as metastatic growths and the assumption of malignancy by primarily benign tumors as would the other existing theories.

But if this theory of the origin of carcinomata be correct, then the tissues undergoing these pernicious changes should contain the toxic substances responsible for their continued growth and propagation. A failure to isolate such substances would not wholly negative their existence as they might readily be compounds of such intense toxicity that the observed effects could be produced by quantities far less than could be detected by any chemical means. If, however, appreciable amounts of the toxin or toxins were present, they should be susceptible of isolation. An investigation of the chemical theory thus outlined must, of course, find its starting point in an attempt to demonstrate the presence of such compounds in the substance of malignant growths. After repeated experiments, the following procedure was adopted.

METHOD OF PROCEDURE.

From cases of operable tumor where a diagnosis of carcinoma had been positively established, both by clinical and microscopical findings, the freshly extirpated growth was carefully freed from fat and extraneous tissue adhering to it, the material itself cut into very small pieces, and the mass digested with water at 100° for many hours. When the digestion was complete, the mass was filtered to remove the exhausted residues, the clear filtrate containing those portions of the tumor which were soluble in water. By acidifying this filtrate and again boiling, the soluble proteins were coagulated and the precipitate thus formed removed by a second infiltration. The protein-free filtrate was exactly neutralized and the solution evaporated on the water bath to a syrup consistency. This syrup was carefully extracted with pure alcohol and the extract, after the removal of the alcohol by distillation, repeatedly treated with ether. The residue, insoluble in the ether, was then dissolved in water, the solution rendered strongly acid and again thoroughly extracted with ether. This time the ethereal extracts were collected, the solvent removed by distillation and the final residues again dissolved in water. The aqueous solution was rendered alkaline, boiled for half an hour and again filtered. On the spontaneous evaporation of the filtrate long white, needle-shaped crystals separated and these were purified by repeated recrystallization from water. These crystals in their purified form are the basis of the subsequent investigations. Up to the present their exact nature is not known, and extensive and exhaustive investigation will probably be required to determine their exact chemical constitution. This part of the work has been undertaken by an expert organic chemist and the investigation is already well under way. Whatever the exact chemical constitution of this compound may be, this much is evident, that the substance or substances secured by this method of procedure have been freed from all organic life and any results obtained by its use must be referable to its own inherent chemical nature and not to the presence of organized life in any of its manifold forms. The crystals show a sparing solubility in water—about 4 parts in 100—and for convenience sake, carefully sterilized aqueous solutions were used in all the subsequent investigations.

EXPERIMENTS ON TOXIC ACTION.

Having isolated a substance from the malignant growths, the next step was to determine its physiological action. Rabbits were selected for the initial experiments as they are not normally subject to tumor growths—a condition which, of course, forbade the use of mice or rats. Eight healthy animals were selected for the first experiment, four for injection with the solution and four to be used as controls. Each member of the first group was subjected to the influence of the substance, the condition of experiment with each showing some minor variations, but all following the same general plan. At the time that the regular injections were made on the experimental animals, sterile salt solution was injected under precisely the same conditions into the controls. The results obtained with the first group may be briefly considered as a whole. Each of the four received an injection of 0.25 c.c. of the sterile solution, corresponding to 10 milligrams of the active substance, the operation being performed under strictly aseptic conditions. In each case a local disturbance developed at the point of inoculation, which gradually increased in severity. In addition, there devel-

oped a general constitutional manifestation, which included an increase in temperature, with much restlessness followed by a somewhat lethargic condition with an apparent dullness of all the senses. The constitutional symptoms persisted for perhaps 24 hours, after which three of the rabbits were restored to their normal activity and apparent good health for a period of several days. The fourth rabbit—No. 3 of the series, developed a septic condition, probably as the result of faulty technic, and died at the end of the third day. After the period of several days of apparent good health, a gradual change was observed. The rabbits slowly lost in weight, there was a progressive diminution in activity and bodily strength; they became anemic, as evidenced by the pallor of the membranes—in short, a general cachectic condition developed, which terminated fatally in less than three months. The local disturbance, in the meantime, showed induration with a continued increase in area. In one instance there was marked breaking down, attended by the complete destruction of a large amount of tissue. In each instance the rabbit presented the clinical picture of malignant disease, the degree of the development of the specific manifestation varying with the site of the inoculation. The post-mortem examination showed extensive and characteristic glandular involvement.

The results obtained from this preliminary experiment indicated that the tumor extract possessed: first, a marked toxicity, and, second, the power to reproduce in healthy tissue growths similar to that from which it was itself derived. In the course of the subsequent experiments the latter point was still more strikingly illustrated Five rabbits used in the immunization experiments shortly to be described, each received several sub-lethal doses at ten-day intervals. Although the abdomen was the site of all injections, the primary lesions developed severally as follows: one in the thyroid; one on the right cheek, involving the nose and orbit; one on the left foot; and the remaining two in the head, one on the left side of the lower jaw, the other involving the left eye. All of these showed the characteristic progress of a general cachexia, which in every instance has ended fatally. The necropsies have all shown the establishment of numerous metastatic growths, the uniform picture being that of general miliary carcinomatosis. The histological examination leaves no doubt as to the malignant character of both primary and secondary lesions.

During the course of the initial experiments a second series was carried out to determine the character and degree of general toxicity of the tumor substance. For this study both guinea-pigs and rabbits were used. With the former it was found that 0.5 c.c. of solution corresponding to 20 milligrams of active substance, when injected subcutaneously into a 250-gram guinea-pig, would produce death in about two hours, the general course of the intoxication being tetanic in character. The autopsy showed a marked venous engorgement throughout the body, with increase in quantity of fluid in all the cavities. This latter was especially marked in the peritoneal cavity, where some 10 c.c. of a brownish exudate was found. This exudate, when carefully removed under strictly aseptic conditions and kept in a sterile tube, would produce an intoxication in a healthy guinea-pig similar to the one described on the injection of a quantity not exceeding 0.2 c.c.. The increase in the toxicity of this exudate over that of the original substance offers an interesting point for further investigation.

Parallelling the experiments with the guinea-pigs, a number of studies were made on healthy adult rabbits. The subcutaneous injection of 0.5 c.c. of the solution produced an intoxication in the rabbit, differing only in degree from that of the smaller animal, and ending fatally in about 12 hours. It will be noticed that the lethal dose is identical with that used in the first experiments in which only slight primary effects were noticed. This is explained by the fact that the material used in the first experiment was the first prepared, and consequently at a time when the experimental technique was in process of evolution. That it was less pure than the succeeding preparations was evidenced by the fact that the crystals had a distinct brownish color, while all the later samples were a pure white. With the exception of the four animals of the first experiment, however, all other injections were made with the pure, uniform material of later preparation.

Since the peritoneal exudate of the poisoned guinea-pig showed a marked increase in toxicity, it was thought well to try its effect on the rabbits. Of this exudate, 0.5 c.c. was injected intraperitoneally into a healthy adult rabbit. An intoxication similar to that already described rapidly set in, and, the symptoms developing far more rapidly than in the previous experiments, the poisoning ended fatally in an hour. From this it is probable that the tumor extract excites a pernicious cell activity, in the course of which toxic matter is formed. Furthermore, the production of fresh poisonous material must progress at a rapid rate, as one-twentieth of the peritoneal exudate causes death in the rabbit in one-twelfth of the time which the exciting dose of the pure extract requires. While the general clinical picture produced by the two substances is the same, the tremendously increased virulence of the exudate bespeaks either a very much greater concentration of the original toxin or the presence of a new, more powerful substance similar in its character to the first.

A decision between these two hypotheses can only be reached by experimental study, and an investigation along this line has already been begun. In any case it has been demonstrated that the tumor substance exerts a high degree of toxicity upon both guinea-pigs and rabbits, and in the case of the former the exudate which

forms a characteristic feature of this and similar intoxications, while exhibiting the same general clinical picture, is far more toxic than the original substance. In fact, throughout the study of the acute intoxications the differences observed were those of degree and not of kind.

With the completion of the experiments just detailed the necessity arose for certain control determinations defining the specificity of the tumor extract. On the one hand the bases used in the preparation of the material might be responsible for the toxic phenomena exhibited, and, on the other hand, the poisonous substance might result from the treatment of any tissue, normal or otherwise, by chemical reactions involved in the processes of separation. In order to resolve these points the following experiments were undertaken:—

In the first case a salt was prepared from the base used in the separation, and lactic acid, the latter selected as it is found in small amounts as a constituent of normal tissue. Repeated injections of this material in quantities much larger than were used with the extract, failed to produce other than most temporary and evanescent effects. Further, repeated injections into the same animal have failed to produce the slightest evidence of disease even after many months' time and the administration of large quantities of substance. The wholly negative character of these careful and extended experiments warrants the conclusion that the mineral portion of the tumor extract as conditioned by the method of separation is wholly without influence in the production of the observed phenomena.

As the starting point for the second control experiment, tumors were selected which clinically and histologically gave absolute evidence of their benign character. These were treated in precisely the same manner as the malignant growths, and as a result of the various operations a crystalline product was obtained which differed materially in appearance from that derived from the carcinomata. Following the technic adopted with the earlier experiments, doses of this material were injected into both rabbits and guinea-pigs. Neither with doses ten times that of the lethal dose of the carcinoma extract nor with repeated injections over a long period of time, has it been possible to produce local or constitutional symptoms of intoxication, the effect of the injections being no more than would have been obtained with similar doses of normal saline solution. In short, neither the material used in the separation, nor the method itself, can produce the specific poison of the malignant tumor extract. Further, benign tumors contain no toxic substance or substances; none, at least, that are separable by the method employed.

The result of these experiments warrants the following conclusion: Carcinomata contain some substance or substances which are susceptible of isolation, and, which, when injected into healthy tissue, produce results which are dependent upon the inherent chemical nature of the material itself.

The direct implication of this conclusion was the possibility of producing an antibody, the effects of which would directly antagonize the toxic action of the tumor substance. To this end a series of immunization experiments were undertaken, the details and results of which will be next considered.

For these experiments 53 healthy adult rabbits were selected. These were all injected subcutaneously in the abdomen in the same manner, under carefully maintained aseptic conditions, with small repeated doses at ten-day intervals, according to the following schema:—

	VOLUME.	ACTIVE PRINCIPLE.
I	0.1 c.c.	0.004 grams
II	0.25 c.c.	0.01 grams
III	0.5 c.c.	0.02 grams
IV, V and VI	0.25 c.c. each, in all	0.03 grams*

Thus, in a period of 50 days the animals received 64 milligrams of the toxic substance, divided into six doses. Of the 53 animals originally selected, five developed signs of malignant disease during the process of immunization, and though in these cases the injections were discontinued, the tumors continued to increase and have all terminated fatally. These were the animals described in the earlier part of this paper. Ten more of the animals have developed signs of constitutional disturbance of a greater or less severity.

While no palpable growths are to be found it is not improbable that these animals also are the hosts of malignant growths, which in time will prove demonstrable. The remaining 38 rabbits are apparently in complete and perfect health, and in most instances have increased somewhat in size and weight during the immunizing period. Only these latter healthy animals have been used in the subsequent experiments.

Blood was withdrawn from these animals by plunging the needle of a sterile syringe directly into the heart; the animals apparently experienced no great discomfort, and in every instance have recovered from the operation. The 40 c.c. of blood thus withdrawn was allowed to coagulate spontaneously and the serum removed and stored following the familiar technic for the preparation of immune sera. Needless to say, during both the operation and subsequent handling of the serum, every precaution was observed to insure continued sterility.

The first experiment with the serum was performed as follows: Two guinea-pigs of about the same weight were selected and into the first was injected 1 c.c. of the rabbit serum, while the control animal received a similar quantity of sterile salt solution. The experimental animal

* It will be noticed that in non-immunized rabbits this dose would kill in 12 hours. In the present instance some of the animals showed transitory evidence of intoxication, and the subsequent doses were reduced to that of the second injection, which had been shown to be readily tolerated.

experienced a period of dullness after the injection, which lasted for perhaps three hours. This gradually passed away, however, and the animal was soon restored to apparently normal health and activity. Two days after the immunizing dose, 1 c.c. of the tumor extract was injected directly into the abdomen of each of the animals. The control guinea-pig, after exhibiting the characteristic symptoms, died in about 30 minutes. The immunized animal, on the other hand, showed not the slightest effect, either at the time of the injection, or in the period of several weeks which has since intervened. Obviously an immunity was conferred upon the latter animal by the serum injected.

A second set of experiments was now performed on guinea pigs, in which the poison and serum were administered simultaneously. The results are tabulated as follows: (It will be noted that double the lethal dose was used.)

NO.	4% SOLUTION OF POISON (IN C.C.)	SERUM (IN C.C.)	RESULT.
1.*	1.00	0.00	Death in 22 minutes.
2.*	1.00	0.00	Death in 24 minutes.
3.	.99	.01	Slight temporary constitutional disturbance.
4.	.99	.01	No other effect.
5.	.98	.02	No initial effect.
6.	.98	.02	Later both animals died. Post-mortem showed that injection puncture had pierced liver, causing general peritonitis.
7.	.95	.05	
8.	.95	.05	Same as 3 and 4.
9.	.90	.10	
10.	.90	.10	Same as 3 and 4.
11.	.98	.02	Repetition of 5 and 6.
12.	.98	.02	Same as 3 and 4. The minimum constitutional effect shown with this proportion.

* Controls.

With the exceptions noted above, the animals are all in excellent health.

Similar experiments upon rabbits, using the same procedure as above, have been carried out, special care being taken with the technic. The results have been even more satisfactory, no death having resulted in the experimental group.

In conclusion, the facts elicited up to this point in the investigation may be briefly summarized as follows:—

SUMMARY.

1. A procedure has been developed whereby a substance or substances may be isolated from carcinomata, the method precluding the presence of organic life in the end product.

2. This end product has been shown to be of a highly toxic character.

3. The peritoneal exudate produced by a fatal intoxication is far more toxic than the original substance.

4. The tumor substance has been shown to possess not only a general but also a specific toxicity, since on injection into rabbits in doses of less than lethal amount it will produce well-defined, well-characterized carcinomata, the site of the primary lesion being different from and independent of that of the injection.

5. The appearance of the primary lesion is followed by the development of numerous metastatic foci in different parts of the body, while the characteristic cachexia manifests itself.

6. The poisonous tumor preparation has been shown to be characteristic of carcinomata.

7. By the repeated injection of very small doses a large number of rabbits have been immunized.

8. The serum from the animals thus immunized possesses the power of antagonizing the toxic action of the tumor substance. This has been demonstrated by injections of the serum either previous to or simultaneous with that of the tumor poison. In both events no effect is observed from quantities of the poison which, if injected alone, would produce a rapidly fatal intoxication.

9. With the simultaneous injection of poison and antibody it has been shown that one part of the latter will effectually antagonize 99 parts of the former.

THE NEGLECT OF HYDROTHERAPY IN AMERICA.*

BY JOSEPH H. PRATT, M.D., BOSTON.

A STUDY of the causes underlying the neglect of hydrotherapy in this country leads to the conclusion that the chief fault is with the medical schools. There is no American university except Columbia that requires of its medical students a practical knowledge of the subject. In a few institutions, and of these the Jefferson Medical School deserves special mention, courses of lectures and demonstrations on hydrotherapy are included in the regular instruction.

At Columbia the course in hydrotherapy is obligatory to the senior students. The final examination contains not less than two questions on hydrotherapy. In addition to a course of systematic lectures, sections of the class receive practical instruction in the hydrotherapeutic department of the Vanderbilt Clinic on two afternoons of each week. Time has been found for this course at Columbia, although twenty years ago the head of the medical faculty stated to Dr. Baruch that the curriculum was then so overcrowded that instruction in hydrotherapy was impossible. The same excuse is made by

* Presented at a meeting of the Medical Staff of the Clifton Springs Sanatorium, Clifton Springs, New York, Dec. 28, 1912.

many medical schools today. No one will dispute the fact that the medical curriculum is overloaded, but as Dr. Baruch has pointed out, "much time that is now wasted in teaching the properties and application of drugs, which are rarely used in practice, could be profitably devoted to the clinical study of the action of the most powerful remedial agent." Time can certainly be found in the clinical years by omitting non-essentials to teach thoroughly the principles and applications of hydrotherapy, and time will be found when teachers of medicine discover the truth that thermic stimulation in some of its many forms is indicated in nearly every case of disease they are called upon to treat.

For about a quarter of a century Vienna was the only university in the world where instruction in hydrotherapy was given. Its leadership in this branch of therapeutics was due to Wilhelm Winternitz, justly called the father of scientific hydrotherapy, who from 1865 until the present has been investigating, teaching, and practising the use of thermic stimuli in the treatment of disease.

At the age of twenty-five, two years after his graduation, Winternitz was made a naval surgeon. While at sea on a troop-ship a febrile epidemic resembling influenza broke out among the men. The supply of drugs on board was quickly exhausted. The only therapeutic agent at hand was water. With fear and misgivings he began to treat his patients with this unfamiliar form of treatment. To his surprise the sick men were more quickly restored to health by the excellent action of water than by the quinine and other antipyretic drugs he had previously employed.

His military service at an end he betook himself to Gräfenberg, the home of the empiric Priessnitz, and strove, by observations on himself and others to solve the contradictions of the hydrotherapeutic system then in vogue. In 1865, he was then 31, he established at Kaltenleutgeben, with the aid of Oppolzer, the first clinic and institute of hydrotherapy, with 18 beds. This now accommodates 400 in-patients besides a large out-patient department.

In 1879 he completed his great work in two volumes, entitled "Die Hydrotherapie auf physiolgischer und klinischer Grundlage." He recognized that it was necessary in this new subject, much misunderstood and much misrepresented, to describe in detail both the physiological experiments and the clinical observations that he made. In this work, as he says in the preface, he has rejected the use of the "hollow phrase." He tells us that it was his aim throughout to have every deduction based upon a fact. Examine this work now, after a period of 33 years, in the light of the science of the present day and see how well he accomplished this aim. He made careful observations with sphygmograph, plethysmograph and thermometer, and describes much that was new regarding the action of thermic stimuli on the body. To illustrate the character and value of Winternitz's physiological work I wish I could reproduce one of his plethysmographic records. It demonstrates clearly the fact discovered by him, that a cold (6.2° C.) sitz bath produces a striking increase in the volume of the arm. He also found that a Sitz bath of warmer temperature (28° C.) diminished the size of the arm. These and other observations showed that thermic stimuli applied locally to one part of the body may influence profoundly the circulation in other regions by dilating or contracting the vessels according to the temperature employed. The application of these physiological facts in treatment is clearly set forth by Winternitz in his book. It is discouraging to know that this great work by Winternitz failed to arouse the interest of scientific physicians.

In 1881 he was made professor in the University of Vienna and soon afterwards established at his own expense a department for hydrotherapy in connection with the Vienna general policlinic. In 1890 he founded a journal devoted to hydrotherapy—the *Blätter für klinische Hydrotherapie*. He himself has been a constant contributor to the literature on this subject. If you turn to the latest issue of the *Zentralblatt für die gesamte innere Medizin* (Dec. 21, 1912) you will find the abstract of a recent paper by the same Wilhelm Winternitz on the physical treatment of chlorosis. This remarkable old man in a paper[2] on adaptation to Intense Thermic Stimuli, read last October before the Austrian Balneological Congress, showed how closely he still follows the advances of medical sciences in their relation to hydrotherapy. As is well known, the body accustoms itself to intense thermic stimuli, but how this is brought about is not clear. He refers to Pauli's investigations on the colloid chemistry of muscle contraction and to Zuntz's theory and the bearing of this recent work on the physiology of the adaptation to hot and cold baths. His first paper dealt with hydrotherapy. That appeared fifty years ago, and we have just seen he is still writing on the same subject. Such life-long devotion to any cause is rarely seen.

Winternitz had been teaching and practising hydrotherapy for more than thirty years before Germany realized the need of instruction in the subject. There seems little doubt that the awakening was due far more to the rise of the "nature doctors," than to the scientific work of Winternitz. Chief among these irregular practitioners was Father Kneipp. This man, ignorant as he was of medical diagnosis and the indications for treatment, had an immense following. More than 400,000 copies of his book "Meine Wasserkur," were printed. To Kneipp, however, must be given the credit of interesting the general public of Germany in hydrotherapy and thermotherapy.

Baruch says that the damage wrought by the Naturärzte on the status and on the income of the medical profession created great alarm. Credé in 1895 insisted on the need of applying

hydrotherapy in hospitals and of teaching it in the schools. A "commission for the revision of medical examinations" was appointed. The distinguished professor Kussmaul, who was the chairman, reported that "it cannot be denied that the faith in prescriptions is waning among educated people and that confidence in dietetic remedial methods and in the curative power of water is in the ascendant. Of hydrotherapy the young physician knows almost nothing when he leaves the university. Unfortunately he sooner or later may encounter discomfiture when an uneducated water doctor steps in and cures the patients after he had failed." Kussmaul insisted upon the necessity of teaching hydrotherapy in the universities. In other papers I have described the rapid advance of hydrotherapy in Germany during the past fifteen years.[3]

Although hydrotherapy is not taught in our schools there is no reason why physicians cannot acquire a practical knowledge of the subject. There are excellent text-books in English and opportunities for experience and skill are to be found in the private practice of any physician. The unpleasant truth cannot be denied that most of us, after the student years in school and hospital learn few new technical methods of any kind. I wonder how large a proportion of the doctors who graduated twenty or thirty years ago have never studied any new text-books on diagnosis and treatment since they began to practice. I received as a gift the medical library left by a physician of good standing who practised in a suburb of Boston from the time of his graduation from Harvard in the late thirties for a period of forty years. There were two hundred or more volumes. Practically all the books had been published between 1830 and 1840, and only one bore a later imprint than 1850. His chief work on the practice of medicine was the Philadelphia reprint of Tweedie's System, published in 1840. He owned a Laennec purchased in his student days. I searched in vain for the works of Graves, Stokes, Watson or Latham, all published prior to 1850. He did not even have Wood's Practice, which was the standard American text-book of medicine for many years, and the first edition of which appeared as early as 1847.

The yellow streak which runs through all forms of physical therapy deters many good men from investigating the value of hydrotherapy. Fifty years ago the country was dotted over with hydropathic resorts where cures were promised for all forms of supposedly incurable diseases. Claims scarcely less false are found in some writings today.

At the Boston Medical Library there is little if any demand for hydrotherapeutic literature or for that in any other branch of physical therapy except Roentgenology. This is doubtless the case in other parts of the country. Dr. S. Solis Cohen thinks the neglect of hydrotherapy is largely the fault of the medical societies. In a recent discussion he said, "Let a man report to the ordinary medical society—not excluding this Section of the American Medical Association—the results that follow scientific electrotherapy, hydrotherapy, aerotherapy, pneumotherapy, thermotherapy, psychotherapy, phototherapy—anything except x-rays, which are getting to be semi-respectable—and at best he is listened to with polite indifference. Commonly he is not listened to at all. It takes the heart out of one to be treated in that way!"[4]

There are some signs of increased interest in hydrotherapy, and mention should be made of these. The officers of the medical and pharmacological sections of the American Medical Association have in recent years sought repeatedly to have papers on this and allied subjects. Excellent text-books on the subject have been written by American pioneers in hydrotherapy—Baruch, Kellogg, and Hinsdale, and Solis Cohen's System of Physiological Therapy, in eleven volumes, contains many valuable articles. In an increasing number of hospitals the authorities are installing good equipments for hydrotherapy and mechanotherapy.

This is encouraging, but it must be admitted that in some of the hospitals with hydrotherapeutic departments the apparatus is not used at all and in others I have visited the work done is not such as to deserve commendation. It is essential for success that the hydrotherapeutic treatment in hospitals should be under the immediate direction of a physician trained in hydrotherapy who is in a position to devote a large portion of his time to this work. Usually the all important details, in regard to temperature, duration of the bath or douche, and often the selection of the procedure are left to the nurses and masseurs who give the treatments.

Hospital authorities will in time realize that the selection of a trained man as director of the department of physical therapeutics is even more important than the selection of apparatus. The man with the simplest equipment can do much, while apparatus without the man who understands its use is simply a waste of money. In some institutions the arrangements for hydrotherapy are apparently left in the hands of the architect. In looking over the plans of a new and richly endowed hospital I noticed that about half the space allotted to hydrotherapy is to be devoted to sulphur baths! At the present time time it would be difficult in America to find trained physicians to take charge of hydrotherapeutic departments. The young men of the right type fail to see a career for themselves in this new line of work, which to them, as to their teachers, often seems less commendable than that of the ordinary physician or laboratory worker.

During the past ten years a systematic effort has been made by a number of physicians in Boston to further the study and use of hydrotherapy in that city. The leader in this movement has been Dr. James J. Putnam. An in-

stitution for hydrotherapy and thermotherapy was established in the fall of 1903. The board of directors has included some of the leading medical men of Boston. During the past ten years 230 physicians have sent patients to the institution. Personally I have made use of the facilities afforded in the treatment of a large proportion of the ambulatory cases of chronic disease that I have seen. My therapeutic resources would be much crippled were the establishment to close.

This original undertaking has been commended by a number of writers, and in a few American cities institutes modelled somewhat after that in Boston have been established. The influence of this modest pioneer effort has been felt even across the Atlantic. Dr. R. Fortescue Fox[4] in the course of a series of lectures on medical hydrology before the Royal Society of Medicine in London, made the following statement: "For many years I have been impressed by the need for suitable institutions for hydrotherapy in this country. They might well be modelled on the pattern of the Baths of Boston, open to the use of all medical practitioners, under skilled professional control, and served by attendants trained in the technic and in the use of instruments of precision. From such institutions the services of the attendants would be available outside for the treatment of acute disease. Within its walls many physicians who have to deal with chronic disorders will find new and unexpected possibilities. And the remedies would be applied as they should be applied, under their own care and observation. Moreover, the great interest of conducting a course of physical treatment, with the necessary skilled assistants, would stimulate many medical men to independent research—and would in time confer educational value upon an institute of this kind. What I have said applies to most of our large towns, but especially to London."

An analysis of conditions as they exist in the Boston institute is not encouraging. Although a large number of doctors have sent patients, many have sent very few cases and their patients took so few treatments that it is unlikely that any benefit was obtained. That most of the doctors who referred patients disclaimed any knowledge of hydrotherapy is not surprising. That more have not utilized the facilities of the institute for acquiring knowledge of hydrotherapy has been disappointing. The lack of interest in new methods of treatment that have been introduced from time to time is not easily explained. The hot air douche is extensively used in Germany and Bier found it of great value in the treatment of trigeminal neuralgia. Schultze[5] reported in 1907 that Bier had treated successfully by hot air massage twelve out of twenty patients who had entered the hospital for the operative treatment of neuralgia. The following summer one of Bier's hot-air douches was installed in our institute and an announcement giving a brief statement of Bier's method was sent to over one thousand physicians. From that day to this we have never had a case of trifacial neuralgia referred for this treatment.

From the outset we insisted that each patient bring a prescription from the attending physician, in order that the details of temperature, mode of application and duration be in his hands rather than in that of the attendants. Naturally this attempt failed as most of the doctors were ignorant of these details and disinclined or too busy to learn them. The prescriptions that were sent often read "tonic baths" or "eliminative baths," and sometimes simply "the baths." An outline of hydrotherapeutic prescriptions was then prepared. I hoped this would lead to a study of the excellent text-books on hydrotherapy from which the list had been prepared and then the physicians would be able to write their own prescriptions and modify them for the needs of the individual patient. Instead of stimulating further inquiry this list was regarded as unsuitable owing to the large number of treatments given. Yielding to the request for a simpler and shorter outline, I prepared a brief introduction to the use of hydrotherapy in chronic diseases and included a small number of selected prescriptions.

I believe now that if such an institute is to be really efficient physicians skilled in hydrotherapy should prescribe and supervise the treatments of all the patients. To adopt the plan of leaving this work to the doctors who have not a working knowledge of hydrotherapy is to invite failure.

That our institute is held in esteem by former patients was indicated by subscriptions from them of nearly a thousand dollars last summer. This was given for the purpose of furthering the work and of paying off a debt incurred during the preceding year.

The institution would be placed an a sound financial basis if it received a support from the doctors which for a city the size of Boston would be ridiculously small. It is depressing to think of the suffering that could be lessened if the medical men were alive to the opportunities offered. Let me cite an illustration. In Berlin 504 cases of sciatica were treated in Brieger's Hydrotherapeutic Institute from 1903 to April, 1905.[6] At that time our institute was the only place in Boston where the methods employed in many of these cases were available. During the same period we had three cases.

In investigating the cause of the neglect of hydrotherapy by the practitioners in Boston one cannot depend too largely upon this single cooperative institute. Some physicians say that they send every case in which the treatments are indicated, others assert that many patients refuse to go owing to lack of faith in such forms of treatment and to others the expense is prohibitive. The suggestion has been made that a change of location would greatly increase the number of patients.

If attention is turned to the public hospitals of

the city the true explanation for the lack of interest in our undertaking will be found. The statement was made by one of the trustees of the Boston City Hospital that if the medical staff evinced a keen desire to have and to use a hydrotherapeutic department the board of management would favor its establishment. That was nearly ten years ago and there are still no facilities at this hospital for hydrotherapy, and I never heard of any concerted effort on the part of the physicians to obtain them. At the Massachusetts General Hospital, largely through the efforts of Dr. J. J. Putnam, a hydrotherapeutic department was equipped in 1906.

Although visits to the Out-Patient Department averaged more than 400 daily during 1912, the number of hydrotherapeutic treatments given usually ranged from 10 to 15. Last year the total number of cases treated in the hydrotherapeutic department was 390, a decrease of 62 from that of the preceding year. Two explanations of their failure to refer more cases for treatment were given by the attending physicians and their assistants: (1) Forgetfulness of the existence of hydrotherapeutic facilities in the hospital; (2), frank acknowledgment of ignorance of hydrotherapeutic indications and technic.

A personal appeal to refer patients to the hydrotherapeutic department, and to study the indications and effect of the treatments used there was made. Outlines for hydrotherapeutic prescriptions were placed in the clinics. This attempt to arouse interest has had no apparent effect except to increase slightly for a few days the use of hydrotherapy.

This is not surprising. The men in the clinics are busy and often have to see within a short time a large number of patients. Why should the young assistants not use the drugs recommended by their teachers and by the writers of the current American text-books, rather than methods of treatment of which they heard nothing during their student days? Then it is so easy in any hospital to fall into the routine of giving a popular "tonic" mixture such as is found in the formulary of every hospital.

Successful therapy, however, can never move in the ruts of routine. We are called upon to treat sick men and not diseases, and we treat sick men and sick women, not collectively, but as individuals, as sick John and sick Elizabeth. The cure of the body often depends on improving social conditions, on regulation of the habits of daily life and on the cure of the soul.

A course of hydrotherapeutic treatments frequently produces benefit indirectly as in the following case:—

A woman came to the hospital complaining of nervousness and pain in various parts of the body. The physical examination revealed nothing abnormal. For four months the treatment consisted of three teaspoonfuls daily of the elixir of iron, quinine and strychnine phosphates. I prescribed an electric light bath and a partial ablution to be followed by an hour's rest. This was given every other day. In a month she reported that she was feeling much better. At that time an assistant in the clinic discontinued the baths and put her back on the elixir. An inquiry into the daily life of this patient is illuminating. She rises early in the morning and works until nine o'clock at night. She has four young children and a lodger. She never goes out for a walk and rarely leaves the house except on Sunday. She never lies down during the day and is almost all the time on her feet until about nine o'clock, when, household duties finished, she sits down and sews for an hour. Now it is clear that this woman needs rest and recreation more than baths or the elixir. Yet the hydrotherapeutic treatment furnished some rest and relaxation and hence was beneficial in several ways. She has now been instructed to take a walk every day and to cut down her hours of work. In order to take the walk the baby must be cared for by a sister-in-law, who was willing to do this while the patient was taking the treatments at the hospital, but it is doubtful if she will consent to do this extra work to enable the sick woman to take a walk for pleasure. Nervous people often obtain mental and physical refreshment from the thermic stimulation of the skin by hydrotherapeutic procedures that they do not get from walking or other exercise. With these facts before one does it seem a matter of indifference whether this woman gets the elixir or the hydrotherapeutic treatment?

The following case is one in which hydrotherapy seems to have been the method of treatment that was clearly indicated. I saw the patient at the time of her first visit to the hospital. When the physician who had taken the case handed her a prescription for a mixture containing bromides, gentian and nux vomica, I asked if hydrotherapy might not be tried. To this he readily consented. It was a mild case of manic depressive insanity following childbirth:—

The patient was a woman of thirty years of age who, since the birth of her baby four months previously, had been greatly depressed. She had taken no interest in the child although she "wished no harm to come to it," and had never taken care of it herself. She said she did not care to live, but denied that she had any suicidal impulses. Her physicians at her home in Vermont had given her tonics and sedatives and much of her time was spent walking in the open air and calling on her neighbors. She dreaded to be left alone, and had vague fears when she attempted to work. Prior to the onset of the present illness she had always been in excellent health. There was no history of neurotic tendencies in her family. As her condition showed little improvement she came to Boston hoping that the change would be beneficial. As the depression continued she visited the hospital a week after her arrival.

She was given an electric light bath to the point of perspiration and then friction with a wet mit, beginning with water at 70°, and followed by an hour's rest before dressing. This was repeated daily, gradually reducing the temperature of the water. Improvement which dated from the first treatment was rapid and continuous. The depression left her and she felt "splendidly." Three weeks later a few days before returning to Vermont she had slight depression which she attributed to a fear that she might

be unable to take up her work. Certainly the line of treatment here followed was rational. If all the hospital had to offer her was the mixture of gentian, nux vomica and bromides it would have added nothing to the treatment of her family practitioner.

I have described these cases in some detail because I wish to make it clear that the hydrotherapeutic treatment was better for these patients than the drugs prescribed or any other drugs, hence it was not a matter of inconsequence whether hydrotherapy or some other treatment was used. I will grant that the effect in both instances was chiefly psychical, through the action of the thermic stimuli on the nerves of the skin, but it brought about an improvement that the psychical action of the drugs had not produced. The beneficial effect of a few days' vacation at the seashore is also largely psychical, but the same psychical effect cannot be produced by staying at home and looking at pictures of the sea.

To you who have worked long with the methods of physical therapy what I say may seem trite and self-evident, but it is not so. Many times have I tried to make these truths clear to my colleagues in Boston, but without success. It will be no easy task to convince the physicians of America that they must use hydrotherapy if they are to do their full duty to many of their patients, but we must labor to that end. The obligation to teach hydrotherapy cannot much longer be ignored by medical faculties.

In this sanatorium, generously endowed by its noble founder and free from commercialism, you have the privilege and opportunity to advance the study and practice of hydrotherapy and allied forms of treatment, and of raising this important, but neglected branch of therapy to a position of dignity and esteem.

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New Instrument.

APPENDIX EXCISOR.

BY J. EMMONS BRIGGS, M.D., BOSTON.

This instrument was designed by Dr. J. Emmons Briggs of Boston, and is manufactured by Codman and Shurtleff.

By one compression of the handle, the appendix is first securely clamped beyond the point where it is to be amputated, preventing soiling of the wound by regurgitation of the contents. A further compression of the handles brings into apposition the shear blades which accomplish the amputation and the firm compression of the handles forcibly squeezes the stump of the appendix, thus preventing the escape of fecal matter from the cecum and positively checking hemorrhage from the appendiceal artery. When the grip upon the handles is relinquished, the blades of the instrument open, releasing the stump of the appendix, but still grasping the amputated appendix with its proximal end securely pinched.

The instrument in general appearance resembles a hemorrhoid clamp with a male and female blade. The under surface, which comes in contact with the cecum when in use, is



serrated, parallel with the long axis of the instrument and acts as a clamp to the stump of the appendix. Along the centre of the male blade is situated one shear blade, held in position by three screws, permitting easy removal for sharpening. This fits into the depression in the female blade, fashioning the shears with which the appendix is amputated.

On the superior surface of this instrument, the male blade is provided with an automatic clamp and spring which is set like a trigger over a pin at the end of the instrument. The proximal end of the spring clamp is fenestrated, and through this opening passes a wedge-shaped projection of steel, attached to the female blade, which acts both as a guide to the automatic clamp and as a release cam. The function of this is to automatically release the blade of the clamp which grasps the appendix at its distal side just before it is severed by the shearing blades.

The meso-appendix is first grasped with artery forceps and separated; the appendix is then held in a perpendicular position, placed between the blades of the appendix excisor. With one compression of the handles, the appendix is grasped upon the distal and proximal side and amputated between those points. By opening the hand, the blades spring open, releasing the stump of the appendix but still securely holding the amputated appendix, which cannot be removed from the forceps, except by setting the trigger over the pin. The stump, which has been rendered bloodless and sealed by firm compression, may then be treated by inverting it into the cecum or by any method which the surgeon may elect.

ADVANTAGES OF THE INSTRUMENT.

It simplifies technic, saves time, avoids possibility of spilling septic material from the interior of appendix or cecum, during and following amputation. The new technic consists in applying the appendix excisor, compressing the handles and discarding the excisor containing the appendix.

Old Technic. Applying artery forceps to appendix on proximal side, then distal side, amputating with knife, scissors or thermocautery, then discarding two pairs of artery clamps, knife or scissors and appendix.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

THE TWENTY-SIXTH MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY WAS HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 29, 1913.

The following papers were read:

DR. J. MASON KNOX, Baltimore, read a paper entitled:

DIABETES IN EARLY INFANCY.

ABSTRACT.

The patient was an infant of eight months. The onset of the disease was insidious, but the course rapid, ending in coma after a recognized illness of three weeks.

Autopsy Findings. There was a diminution in the number and size of the Islands of Langerhans.

Fifteen cases of probable diabetes, under one year were found in literature from 1852. In several of these the disease seemed to follow an injury to the central nervous system. In one or two others excess of sugar in the diet may have been a factor.

Symptoms. The symptoms were increased hunger, thirst, loss of weight, polyuria and glycosuria, often ending in coma.

Treatment. The treatment to be similar to that of adults. The carbohydrate tolerance should be determined and the sugar content of the milk mixture correspondingly reduced.

"Oatmeal days" were shown to be helpful in one instance.

DISCUSSION.

DR. T. M. ROTCH: We are much indebtel to Dr. Knox for having given us this interesting paper, because it brings to our notice the great importance of recognizing the disease early. Not very long ago it was almost unknown that it occurred in the first years. I think that his number of cases is larger than I have previously seen reported and that it will draw the attention of the practitioner to the fact that it does exist in babies and should be recognized. I have nothing to add beyond that the disease at this early stage of life has not been studied as much as it should have been and that we are still rather in the dark about it.

DR. F. L. MORSE: I have been very much interested in this subject in the last few months, and have just finished correcting the proof of an article on Diabetes in Infancy and Childhood, which is to appear shortly in the BOSTON MEDICAL AND SURGICAL JOURNAL.* There is one thing I would like to say about Case 15. I took the liberty of writing to Dr. Eaton and learned that the child died a few months afterwards, so that this adds one more to the list of Dr. Knox's fatalities. I have never myself seen a case of diabetes under one year, but I have had two cases between one and two years, both nearer one than two years. Neither of them had had any history of diabetes in the family. One of them had always been carefully fed, with no excess of sugar. The other had been fed on nothing but condensed milk, in large amounts. The duration in the first case was between three and four weeks; the first symptom was polyuria, and the thing which first attracted the mother's attention was the deposit of sugar on the vessel and on the floor. In the second case the duration was apparently only about a week, and the first symptom which really drew attention to it was the onset of diabetic breathing. The child died the same night that I saw it in consultation. There is really not much to be said on the subject after listening to Dr. Knox's paper. But the thing which interested me a great deal in looking up the subject was the frequency of lactosuria and galactosuria in babies, especially when they have some disturbance of the gastroenteric tract. I am also inclined to think that a glycosuria is not so very uncommon in babies, that is, an alimentary glycosuria of temporary duration.

DR. H. W. GOODALL: I do not know that I have very much to add to the discussion as I have never observed diabetes in an infant. It has, however, occurred to me that possibly the severity of the disease in children may be, in some way, largely due to the failure to store up glycogen and to transform sugar into fat.

As is well known, all rapidly growing cells are comparatively rich in glycogen and it is to be supposed that any interference with its storage might be followed by serious results.

It has also occurred to me that something can be done in the way of preventing glycosuria in children. The sudden change from one carbohydrate form to another, as from lactose to maltose, might encourage the production of a glycosuria if the enzymes, or other functions that take care of sugar are not fully developed. A more gradual change,

* See JOURNAL, Vol. clxviii, No. 16, p. 530.

however, would allow sufficient time for the ferments to develop. Experiments have been done in which carbohydrates have been fed in gradually increasing quantities to carnivorous animals, with the result that the corresponding ferments, not normally found in the animal, have developed.

Dr. R. W. Hastings: I would like to ask Dr. Knox if he has made any trial with the Metchnikoff tablets. For a case seen last summer, a child a little over two years who was referred to me because he was drinking three or four quarts of water a day, and the analysis of whose urine showed 5 or 6% of sugar, I made use of oatmeal and also the Metchnikoff lactic acid tablets. After about six weeks the sugar absolutely disappeared from the urine. This was distinctly a case of alimentary glycosuria, for the child had been fed very freely on sugar, the child coming from Savannah, and had had it in large quantities in connection with his food. He returned to Savannah and this winter developed colds. With the infectious throat disturbance the sugar all came back again and the doctors down there decided to send him to the Johns Hopkins Hospital for observation. There under a strict diet with restriction of starch and sugar, the sugar all disappeared again. The nurse has written me two or three times since his return home and says that the slightest increase in the amount of starch causes the immediate appearance of large quantities of sugar. I would like to ask if Dr. Knox recommends the lactic acid tablets, or if lactic acid milk had been tried in any of those infants under a year.

Dr. Knox: I have never given lactic acid tablets to children under one year, but have used them with older children suffering from certain forms of intestinal indigestion. The case to which reference has been made, I understand left the hospital practically sugar free, but it was felt that there was a constant decrease in tolerance for carbohydrates and that the final outlook was not good. The connection between diabetes mellitus and the injuries of the central nervous system in young babies is particularly interesting. The cases are too few to make any general deductions but as far as they go, they suggest that real diabetes mellitus may follow alterations of the central nervous system. In Case 2, which seems to be unquestionably diabetes mellitus, the condition followed concussion of the brain. The child fell out of its nurse's arm and struck his head and had many convulsions shortly afterwards. It seems quite certain that diabetes mellitus does occur in early infancy, and is the same disease that is present more frequently in adult life. In a certain number of cases, it is unrecognized because of the failure to make routine urine examinations in early infancy.

Dr. L. H. Newburgh, Boston, read a paper entitled:

THE USE OF STRYCHNINE IN BROKEN CARDIAC COMPENSATION AND IN THE COLLAPSE OF THE ACUTE INFECTIONS—A PRELIMINARY REPORT.

ABSTRACT.

There is no pharmacological basis for the assumption that strychnine, in medicinal doses, has either a pressor effect or that it increases the work of the heart. Mayer and Denys showed that nothing less than the convulsive dose raised the blood pressure; and Igersheimer showed that the heart was not affected until enormous doses were reached and that this affect was a slowing of the circulation. The strychnine used by me was tested on frogs and found to be highly active. The drug has been given to eight cases of broken cardiac compensation in very large doses with an entirely negative result. It has also been given in large single and repeated doses to eight cases of pneumonia in all stages, and to eight other persons all of whom showed hypotension. No effect on pulse or on systolic or diastolic blood pressures was observed.

Dr. D. L. Edsall: I have watched Dr. Newburgh's work with a great deal of interest, all of it having been done in my wards at the Massachusetts General Hospital. I have, therefore, had an opportunity to see the precise conditions in the patients a great deal of the time while he was doing the work but left the work entirely in his hands, and I am quite confident in saying that there was no manifest change in the condition of the patients in the past on very large doses of strychnine. One of the points studied was the effect of strychnine as a stimulant to the cardio-vascular system. It is from studies of this kind that we are probably going to get some clearness of vision in regard to a very confused subject, and to ascertain the actual clinical value of those drugs that are used for their effect upon the cardio-vascular system.

Dr. W. P. Lucas: I have been carrying out some experiments with strychnine in cardiac conditions in children and find that the blood pressure findings are very much harder to get than in adults and cannot be as accurately recorded. The findings have been absolutely negative as far as I could see. In the worst cases of dilatation it is almost impossible to get accurate blood pressure findings in children. While they have been on strychnine, the symptoms, as far as I can make out, have not been benefited and there has been no progress.

Dr. G. C. Shattuck: As a house-officer, particularly, I had the opportunity to use stimulants in a considerable number of cases of pneumonia, typhoid and heart disease, and had the usual experience that stimulants were far from satisfactory in the infectious diseases. I tried strychnine in a number of cases of typhoid which showed circulatory weakness, and in most of these cases saw no definite benefit. In a few cases I observed well-marked changes in the heart sounds and pulse after the use of strychnine. I saw similar changes for the first time at the Channing Home where a patient with phthisis had taken 1-30 of a grain three times a day for several days. When the visiting physician examined the patient, he said the heart was working too hard, and asked what drugs were being used. The heart sounds in this patient were considerably louder than normal, the second aortic being especially accentuated, and the pulse bounding. I am aware that such manifestations follow excitement or various other stimuli, and that there are many possible errors in clinical observations of this kind. But later, when I observed the same signs in typhoid patients who were taking strychnine, and noted that the signs developed especially in cases that had taken the larger doses for several days, the signs seemed to have added significance. The signs disappeared when the drug was omitted. There was also a case of pneumonia which behaved strangely. I remember it clearly on that account. In this patient the pulse improved markedly after the administration of strychnine. Benefit lasted for a day or two then the condition got worse, and the dose of strychnine was doubled. The pulse improved again promptly

and remained good for 24 hours or so, when the condition again became serious. Without omitting the strychnine, various other stimulants were ordered. The patient responded always with definite improvement such as I have never seen equaled by any other pneumonia patient. Although these observations were not controlled by blood pressure tests, which were seldom used at that time, most of them were corroborated by one or more persons, and they made so strong an impression on my mind that I hesitate to believe that there are no conditions in which strychinine is of value as a stimulant.

DR. J. M. KNOX: I am much interested in this subject, partly so I suppose because I have heretofore had some faith in strychnine, especially in its effect upon children. Some years ago Dr. Cook carried on a series of observations with cases at the Thomas Wilson Sanitarium to determine the effect of the blood pressure, the systolic pressure only was taken, of strychnia, digitalin and salt solution. His results showed that the rise in pressure following digitalin was more prompt, but of less duration, the curve having a sharper summit. Following strychnia the rise was a little less prompt but the effect was longer. The salt solution was a little less certain, but usually the rise in blood pressure was not so great, but the duration extended over a number of hours making a very obtuse summit to the curve. These observations were made shortly after the beginning of the use of the instrument for measuring the systolic blood pressure and the results may have been untrustworthy.

DR. NEWBURGH: Replying to Dr. Shattuck, we know, of course, that strychnine does increase the reflex irritability of the cord and undoubtedly has an effect upon the reflex mechanism. We also know that the intensity of the heart sounds varies greatly under a number of conditions. For one thing, excitement makes the sounds louder, as is shown in patients who are examined as they come into the out-patient department for the first time, and again two hours later when the sounds are not nearly so loud. Possibly the loud sounds observed by Dr. Shattuck may have been due to increased reflex irritability of the cord. Whether that would mean that the drug was acting in a beneficial way or not, I cannot say. I have had no experience with cases of typhoid fever or with children. I assume, however, that the same thing would hold for children. As to the results of Cook and Briggs I am simply unable to explain them. I have been over all their charts many times, and cannot find why there is this difference. On the other hand I should like to ask why caffein under the same conditions had no results. It is as easy to explain one as the other.

Book Reviews.

Life and Letters of Dr. William Beaumont. By JESSE S. MYER, A.B., M.D. With fifty-eight illustrations. St. Louis: C. V. Mosby Company. 1912.

This very interesting and valuable volume of medical biography, appearing at the centennial of Beaumont's entry into the practice of medicine, is an important contribution to the history of our profession. The introduction by Sir William Osler, Bt., M.D., F.R.S., gives earnest of its merit, and this promise is abundantly borne out by the performance. The material is derived largely from a collection of original documents, manuscript, memoranda and letters preserved by Beaumont's daughter, "including hitherto unpublished data concerning the case of Alexis St. Martin." The story of this famous and familiar case is told anew and in full. Indeed this history deserves to rank with the celebrated crowbar case of Phineas Gage in the case annals of American medicine. An appendix contains an account of Alexis St. Martin's last days, and a collection of literature references and abstracts of cases of gastric fistulae prior to that of St. Martin. Beaumont's fame is intimately associated with this case of his most celebrated patient; but his worth and greatness as a physician and a man far transcend this particular aspect of his work. It is for the record and preservation of these that we are most indebted to the author of this volume.

School Janitors, Mothers, and Health. By HELEN C. PUTNAM, A.B., M.D. Easton, Pa.: American Academy of Medicine Press. 1913.

The first three of the five essays that compose this volume were originally published as serials in the *Child-Welfare Magazine*. The other two are reprinted from other journals. Together they aim to make "a constructive appeal to organizations of mothers to fulfil their responsibility for children's well-being outside the walls of the family residence as well as inside," in other words, to constitute mothers the Argus-eyed keepers of the ways and habits of school janitors. There is much in the book that is sensible. When it errs from the path of practicability, it does so from mistaken zeal and from the limitation of view which is a characteristic and probably an essential of efficient reformers. From the author's standpoint, man is apparently considered largely responsible for the hygienic evils of school-life, as for most others. The remedy is obvious. It need scarcely be said that, despite the merits of this book, the reformed spelling in which it is printed is hardly at present to be approved.

The Care of the Skin in Health. By W. ALLAN JAMIESON, M.D., F.R.C.P.E. London: Henry Frowde and Hodder and Stoughton. 1912.

A little primer written by one who has had thirty years' experience in the study of skin diseases and whose name is well known in dermatological literature. It is quick and easy reading, and deals only with facts that everyone should know.

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MADAME DE SÉVIGNÉ AND HER PHYSICIANS.

DURING the seventeenth century, Vichy was one of the chief watering-places of Europe, as it is still the most frequented in France. Situated on the river Allier, not far from Moulins, it has been celebrated since Roman times for its hot mineral springs, which recently, like most other such thermal waters, have been discovered to owe much of their virtue to radioactivity. The Romans knew the town as *Vicus Calidus*, a name later mitigated into Vichy. Thither celebrities in all ages have repaired for their annual "cure," to counteract the results of their unhygienic living during the remainder of the year.

Among those who thus patronized Vichy for its healing waters and incidental social diversions was Madame de Sévigné, the famous French marquise, who, after her husband's death, carried on with her daughter, Madame de Grignan, the celebrated correspondence which has justly given her a place among the great letter-writers of history. The season at Vichy usually began about Whitsuntide, and in one of her letters dated May 20, 1676 (as quoted in the issue of the *British Medical Journal* for Sept. 28, 1912), Madame de Sévigné describes her life there as follows:—

"I took the waters this morning, my dearest, Oh how nasty they are! . . . We go at six o'clock to the spring, everybody is there. We drink and make very wry faces, for only fancy! they are boiling hot and have a very unpleasant taste of saltpetre. We go and come, take a walk, hear mass, pass the waters, speak confidently of the manner in which we do this; this is the only subject of conversation till noon. Then we dine. After dinner we spend the afternoon with some one of the party. Today it is my turn to be hostess. . . At five o'clock we take a walk in delightful country. At seven we have a light supper and at ten we go to bed."

Again, under date of May 28, 1676, she writes naively of the details of the hydrotherapy and of her doctor:—

"I began the douche today. It is a fairly good rehearsal of purgatory. One is naked in a little underground place, where there is a pipe of the hot water, which a woman plays on you wherever you wish. This state, in which one scarcely retains a fig leaf by way of clothing, is somewhat humiliating. I should have liked to have had my two maids that I might see some one whom I knew. Behind a curtain is placed some one who keeps up your courage during half an hour. In my case it was a doctor from Gannat, whom Madame de Noailles has taken with her to all her watering places. She likes him much. He is a very honest fellow—not a quack, and without prejudices. She sent him to me out of pure friendship. I will keep him, whatever it costs, for the doctors here are unbearable, and this man amuses me. He is not like an uncouth doctor. . . He has wit and good manners. He knows the world, and I am satisfied with him. He talked to me while I was in torture. Picture to yourself a jet of water as boiling hot as you can imagine thrown against any part of your poor body. At first the alarm is spread everywhere in order to stir the spirits into movement. Then an attack is made on the joints which are affected. But when they come to the nape of the neck it is a kind of fire and a surprise beyond understanding. That, however, is the essence of the matter. Everything has to be suffered and one does suffer everything, and one is not burnt, and afterwards we go to a warm bed where we sweat profusely and it is that which cures us. Here, again, is where my doctor is good. For instead of leaving me to two hours of the boredom, which is inseparable from the sweating, I make him read to me and that amuses me."

This doctor appears to have made a great hit with his patroness, for on June 1, she says of him:—

"He is a good liver; he is not a quack; he practices medicine as a gentleman."

Some ten years later, Madame de Sévigné was again taking the cure at Bourbon-Lancy, a smaller neighboring watering-place, the Roman *Aquae Nisineii*. Here, however, she had a different doctor, one Amiot, of whom also she

seems to have held high opinion, and of whom she writes, under date of Sept. 22, 1687, as follows:—

"We have a doctor who pleases me. This is Amiot, a man with a reasonable dislike of bleeding. He has a good opinion of Vichy, but is convinced that the water of this place will do me at least as much good. As for the douche he will have it administered as delicately as if he did not wish me to have it at all. He says we should inform M. Alliot that the remedy is too violent and more apt to excite the nerves than to cure them; that purging the humours and the sweatings which the water and the hot baths will cause will be enough. He speaks sensibly and will guide me with the greatest care."

That Amiot had "a reasonable dislike of bleeding" shows him at least to have been a man of sense. Evidently he was a conservative, not given to drastic measures in therapeusis. Later Madame de Sévigné writes of him:—

"Besides being a very good physician, he has here a little apothecary who is capacity, wisdom, and experience itself. Both say, No douche. They would think it a crime to attack a health such as mine. In a word, they excite confidence by being the first to condemn their remedies when they are not suitable."

Madame de Sévigné died on April 18, 1696. Unfortunately the medical details of her demise have not been preserved. The account of her physicians, however, and of the manner of French hydrotherapeusis in the seventeenth century, remains of perennial historic and literary, as well as medical interest.

THE COMMON COLD.

IT has been well observed, "Could the sum total of suffering, inconvenience, sequelae and economic loss resulting from common colds be obtained, it would at once promote this affection from the trivial into the rank of the serious diseases." A monetary estimate, based on English conditions is before us—during the eight weeks of March and April, probably every other person living in Great Britain suffers from a cough or cold, or both. What then do 23,000,000 colds cost? The expense of such an experience varies, of course, with the individual. Convert the computation into dollars and cents. The $10 a week clerk, who loses one day from his work and has his efficiency lowered ten per cent. for three days more, has cost somebody nearly $2.50. A cabinet minister comes higher, of course. Should so great a man become confined to his room for two days and do a reduced amount of work for two days more, he may cost the country something like two hundred dollars (although malicious persons of the opposite party might declare that the less his activity the greater would be the nation's advantage and profit). The estimate concludes the direct cost of twenty-three million colds to be $28,750,000, with a loss by absence from work of $15,625,000, and from lowered vitality of $12,000,000, a total of $56,375,000. This is for Great Britain during March alone, March being responsible for one-fourth the English colds. Multiply now by four, and then double the result, because our population is twice that of Great Britain; the total certainly deserves a place at least in the imposing tables of how much our people spend on liquor, tobacco, jewelry, pensions, education and foreign missions.

We submit that monetary statistics do not furnish an altogether satisfactory evaluation of the losses by colds. It is the sequelae of the common cold that are of intrinsically dreadful import. Consider only two of these—the diseases which claim half all human mortality in the civilized world, tuberculosis and pneumonia.

Beginning with low temperature weathers and going well into the spring, pneumonia, the most seasonable of all important diseases, takes its greatest toll. Nor does merely cold weather yield many pneumonia cases; but rather the swift meteorological change, the alternating cold and warm day, with germ-harboring dust swept about by winds, are the ideal conditions for the development, not only of the common cold, but also of the pneumonia to which it leads. The cold generally begins with the nostrils and extends gradually (when not properly treated) down the respiratory passages to the bronchi and too often also to the alveoli.

Sneezing, nasal obstruction, headache, coryza, initial dryness of mucous membranes, with difficulty in phonation and deglutition, chill and fever, pain in the thorax and in the bones and joints (from the general toxemia)—how often, especially among the poor are such symptoms neglected until lassitude, exhaustion, loss of flesh, marked temperature, pulse and respiration deviations from the normal, dyspnea on exertion, and finally the blood-streaked sputum of early tuberculosis supervene. How frequently is such the history of a neglected cold, of which the laity

are prone to make light as being "nothing but a cold."

Most colds are the result of specific invasion, and various bacteria have been found in exudates from the upper air passages. Predispositions to such infection are such as make colds the peculiar possession of civilization. Superheated houses, saturated with the exhalations of people crowded in them, lead to many colds. "The stove is a mesmerist that plays no small part in the reduction of human beings to a state of idiocy. The mephitic vapors in the atmosphere of a crowded room contribute in no small degree to bring about a gradual deterioration of intelligences, the brain, that gives off the largest quantity of nitrogen, asphyxiating the others in the long run." Here is a sentiment quite scientific, which would seem to have been taken from one of our excellent modern text-books on hygiene. It is instead to be found in a novel of de Balzac, written seventy years before our systems of sanitation were conceived.

It may further be noted that wet feet greatly predispose; unhealthy noses and throats are very liable to colds and should be appropriately treated for their avoidance. Indigestible food, over-eating (with unlimited potations), not eating enough—such factors engender the "catarrhal habit," evidently by reason of intestinal autotoxemia. Practically all children of the poor have catarrh; such would probably not be the case were starches and sweets decreased in their dietary. Children are oftentimes more pampered than starved. This is unwisdom, despite the dictum of a popular medical writer that "a child should have what it wants when it wants it." Bad teeth and unhygienic mouths, by reason of the bacteria development possible in and around them, foster catarrhs and no doubt lead to colds.

In counting the mischief wrought by colds, their infectious nature must not be lost sight of. Through one case practically the whole force of an office or a factory may be made ill, and oftentimes acutely, too. It would be found "to pay" far better in the end, to send such a patient home until his sneezing and his snivelling have ceased.

BOSTON DISPENSARY NURSES' HOME.—It is announced that the nurses' home of the Boston Dispensary is to be enlarged by the addition of another house on Jefferson Place.

THE BINET-SIMON TESTS FOR MENTAL DEFICIENCY.

IN our issue of February 13, 1913, we took occasion to sound a note of warning upon the placing of implicit reliance upon any rule of thumb diagnosis of the mental capacities of children. We pointed out the fact that artificial aids to diagnosis while often helpful should not be relied upon to the degree that common sense would be relegated to the background. In this connection it is interesting to note that the interpretation of the Binet tests as applied by Dr. Goddard have been still further revised and elaborated by him. In the April number of the Training School he contributes an article that shows some rather radical departures from the manner in which the test has been heretofore applied by him and his assistants. This is especially noted in the matter of the time limit set for the performance of various tests. He says, that he has come to the conclusion that the time limit is to be "used as a general guide. If directions say to allow a minute for this test, the child may take a minute and five seconds and still be credited if the examiner feels that he has made an honest effort and done it carefully even though he has taken a few seconds over time. How much allowance will be made must depend upon the judgment of the examiner."[1] It is a cause for regret to many that the idea should have got abroad that the Binet tests were capable of intelligent application by persons who were untrained in medicine and in the psychology of child life. Now that their most scientific and learned exponent in this country has himself sounded the note of warning in their application we are more than ever inclined to our original position that these artificial aids must be used with extreme caution. We have said that it is better that those applying them have medical knowledge as well as a knowledge of psychology. The reason for this must be apparent on a little reflection. To illustrate we may cite the instance of all those tests which are meant to bring out the power of muscular coördination. Lack of coördination may depend upon many diverse conditions which do not necessarilly carry with them any mental deficiency whatever. The cerebral palsies, choreas, muscular weaknesses from poliomyelitis and some cases of Friedreich's ataxia are examples in point. Likewise the proper interpretation of the child's power of vision and hearing are in the strict

sense of the term medical problems and a failure to estimate them correctly might very well invalidate the results of certain of the tests.

That these artificial aids are of great value we do not for a moment deny but we must agree with Cornell that "the supposition that a child is slightly feeble-minded who is two years, or four years, or any other arbitrary number of years behind the average mentally is fallacious." This author cites the case of two six-year old children who passed the ten-year old test whereas the brightest boys in the truant schools and the Philadelphia house of detention seldom pass the 11-year old test, no matter how old they may be, and this difference he ascribes entirely to differences of environment. The children who passed the test for a mental age so much higher than their chronological age were the daughters of professional men, surrounded by stimulating influences while the boys came from the lowest homes.[2] No less an authority than Tredgold says that he believes that there are cases of children who never can learn the things usually taught in the schools and who are nevertheless not feeble-minded. He cites instances of dullards in school who from the standpoint of the teacher were mentally deficient but who afterwards made a tolerable success in life and who were regarded by their fellows as having more than a modicum of common sense.[3] To successfully apply the Binet tests and to rely absolutely upon their findings in forming a conclusion of the mental capacity of the child requires a perfect standardization of conditions that is well nigh impossible in practice.

To make a diagnosis based entirely upon the direct evidence which such a test affords without taking into consideration the physical condition of the child, his ancestry, his racial origin, and his home surroundings is in our opinion a most unscientific procedure.

[1] Henry H. Goddard: Standard Method for Giving the Binet Test, The Training School Bulletin, April, 1913.
[2] Walter S. Cornell: Health and Medical Inspection of School Children, p. 419.
[3] A. F. Tredgold: Mental Deficiency, p. 142.

THE SPRINGFIELD ACADEMY OF MEDICINE.

THE Springfield Academy of Medicine at its regular monthly meeting on May 13, 1913, voted to purchase a permanent home, the property selected being an old brick residence with large grounds, situated in the center of the city. The Academy was founded in 1907 and now numbers 150 members in Springfield, Holyoke and surrounding towns. The society meets once a month from September until May and for each meeting a speaker of prominence from out of town is secured. It is confidently expected that the new quarters just acquired will greatly enhance the success and value of the society's meetings. Few changes will be necessary in the house to make it suitable for the needs of the Academy. The first floor will provide a large hall for meetings, also two reading rooms, a dining room and a kitchen. On the second floor a laboratory will be installed and the beginnings of a medical library will be housed. Several sleeping rooms will be maintained for the use of members, visiting speakers and other guests. The new home with the necessary changes will cost more than $20,000 and this sum will be raised by the issuing of bonds.

ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and thirty-second annual meeting of The Massachusetts Medical Society will be held in Boston on Tuesday and Wednesday of next week, June 10 and 11, at the Copley Plaza Hotel, Copley Square. On the morning of the first day clinics have been arranged at the various hospitals, illustrative of many of the subjects to be discussed at the section meetings. The section meetings of medicine, surgery, and tuberculosis will be held on Tuesday afternoon, the subject of the section on medicine being a symposium on nephritis. On Tuesday evening the Shattuck Lecture will be given by Dr. Harvey Cushing, of Boston, on "Diabetes Insipidus and the Polyurias of Hypophyseal Origin." On Wednesday morning will be held the annual meeting, and at noon the annual discourse will be delivered by Dr. Homer Gage, of Worcester, Mass. On Wednesday afternoon, the combined meeting of the sections of medicine and surgery will be held at the Boston City Hospital, being devoted to a symposium on diseases of the gall-bladder. The annual dinner will be served at the Copley Plaza Hotel at 7 P. M. on June 11. In view of the interesting subjects of the program provided, a large attendance of members is expected at this year's meeting.

MEDICAL NOTES.

A British Centenarian.—Frederick Halsey Janson, who died recently at Hove, England, is said to have been born on Feb. 8, 1813. He was the oldest solicitor in the United Kingdom, having been admitted to the bar in 1835.

Italian Congress of Occupational Diseases.—The fourth Italian Congress of Occupational Diseases is to be held at Rome next week, from June 8 to 11 inclusive, under the presidency of Dr. Guido Baccelli. The subjects proposed for special discussion are ankylostomosis, professional blood diseases, infant mortality in relation to the occupations and social condition of parents, dermatitides, and the professional occupational pathology of railway employees.

Award of Riberi Prize.—Report from Turin, Italy, states that on May 9 the Royal Academy of Medicine of Turin awarded the Riberi Prize of 20,000 francs, to Dr. Luigi Pagliani, professor of hygiene at the University of Turin, and dean of its medical faculty, for his recently published "Trattato di Igiene."

A Russian Centenarian Nurse.—Miss N. M. Bashmakoff, of the Russian Red Cross Sisterhood, who died recently at St. Petersburg, is said to have been born in 1809, and to have served as a nurse during the Crimean War under the celebrated Russian surgeon Pirogoff.

BOSTON AND NEW ENGLAND.

Boston State Hospital.—The recently published fourth annual report of the trustees of the Boston State Hospital, records the work of that institution for the year ended Nov. 30, 1912. At the close of this period there were 1185 patients under treatment in the main hospital and 83 in its newly established psychopathic department, which has averaged over 100 admissions a month since its opening. The special report of the director of this department outlines its purposes and activities. The pathologist's report shows that 40 autopsies were done during the year. Eighteen nurses were graduated from the training school.

Boston Infirmary Department.—The recently published sixteenth annual report of the Infirmary Department of the City of Boston records the work of the Boston Infirmary for the year ended Jan. 31, 1913. During this period the average actual population at the Long Island Hospital has increased to 893, that at the Charlestown Almshouse had decreased to 94. The report of the visiting medical staff particularly emphasizes the importance of the pathologic work of the hospital. Plans have been drawn for a new nurses' home to accommodate the training-school, from which 19 nurses graduated last year.

Opening of New Milk Station.—On Monday of this week, June 2, was opened the new Dorchester milk station of the Boston Milk and Baby Hygiene Association at Dorchester House, near Field's Corner. Beginning on this date, the price of milk at all the stations of the Association was reduced from ten to nine cents a quart.

Closing of Cohasset Schools.—The board of health of Cohasset, Mass., has recently ordered the public schools and halls of that town temporarily closed, owing to the local prevalence of scarlet-fever, measles, and diphtheria.

Jefferson Medical Alumni of New England.—The annual reunion and dinner of the New England Alumni Association of the Jefferson Medical College of Philadelphia was held recently in Boston. Dr. John C. Berry, of Worcester, Mass., presided. The following officers were elected for the ensuing year: President, Dr. Albert R. Rice, of Springfield, Mass.; vice-president, Dr. James L. Harrington, of New London, Conn.; secretary, Dr. C. A. Riley, of Allston, Mass.; and treasurer, Dr. F. I. Payne, of Westerly, R. I.

A Rhode Island Leper.—Report from Narragansett Pier, R. I., describes the discovery in that town on May 21, of a case of leprosy in the person of a man, resident there for 25 years, who is thought to have contracted the disease while a boy in China.

Opium Seizure in Providence.—Report from Providence, R. I., states that on May 27 a considerable amount of opium and manufacturing utensils was seized in a raid by federal customs officers on the store of a local Chinese resident. On Feb. 8 $12,000 worth of opium was seized at the same establishment.

A CENTENARIAN.—Mrs. Nancy C. Rogers, who died recently at Montville, near New London, Conn., is said to have been born in August, 1809, in Groton, Conn. She was never ill until six months before her death.

FOUR LIVING CENTENARIANS.—Mrs. Louise Waterman Carpenter, of Worcester, Mass., is said to have been born on Aug. 26, 1806, in Michigan.

Mrs. Eliphalet Dorr, of Milton Mills, Me., is haid to have been born on May 6, 1813, in Acton, Me., and celebrated recently her supposed centennial anniversary.

Benjamin Priest, of Canaan, Me., is said to have been born on May 12, 1812, and is reported to be still in excellent health and able to do light work about the farm.

Thomas Spillane, of Weymouth, Mass., who is locally reputed to have been born in 1812 in Ireland, has recently had pneumonia but is now convalescent.

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending May 27, 1913: Diphtheria, 59; scarlatina, 27, non-resident, 3; typhoid fever, 4; measles, 197, non-resident, 1; tuberculosis, 67, non-resident, 4. The death-rate of the reported deaths for the week was 17.94.

NEW YORK.

SANITARY AND MORAL PROPHYLAXIS.—On May 22 the Society of Sanitary and Moral Prophylaxis held, at the New York Academy of Medicine, a memorial meeting in honor of the late Dr. Prince A. Morrow, who founded the society and was its president from its organization until his death. There was a large attendance and addresses were made by Ex.-President Eliot of Harvard, the Rev. J. P. Peters, W. A. Purrington, formerly counsel to the New York County Medical Society, and Dr. E. L. Keyes. The last-named said the society had started eight years ago with a small membership, and today there were 2000 members in New York City, while similar societies, inspired by Dr. Morrow, extended from coast to coast. Tons of literature had been disseminated in schools, colleges, and clubs, and in the army and navy. Legislatures had become interested, and educators had been aroused to the necessity of throwing light upon the sex relations. The movement had already developed to such an extent that it was not necessary for the boys and girls of our land to obtain the first knowledge of the functions of their own bodies from their associates in the streets.

ANTI-CANCER ASSOCIATION. — The National Anti-Cancer Association was formally organized at a meeting of physicians and laymen held at the Harvard Club on May 22. The medical societies represented were the American Dermatological Association, American Surgical Association, American Gynecological Society, American Laryngological Association, American Genito-Urinary Association, American Neurological Association, American Ophthalmological Society, American Otological Association, American Orthopedic Association, and American Association of Pathologists and Bacteriologists. Various other societies also will be asked to join the movement. The followings officers were elected: President, George C. Clark, New York; vice-presidents, Dr. Clement Cleveland, New York; Dr. L. M. McMurtry, Louisville; Dr. Edward Reynolds, Boston; Dr. Edward Martin, Philadelphia; Dr. L. F. Barker, Baltimore; secretary, T. M. Debevoise. The chairman of the Executive Committee is Dr. G. E. Brewer, New York, and other members of the committee are Drs. J. E. Simpson, Pittsburg; Joseph Bloodgood, Baltimore; A. D. Bevan, Chicago; Jeff Miller, New Orleans; Charles Power, Denver; F. J. Taussig, St. Louis; and Reuben Peterson, Ann Arbor. There is also a laymen's committee, headed by James Speyer of New York.

A LIFE TABLE.—A life table, based on the mortality of New York City in the three years 1909 to 1911, inclusive, has been prepared by the Health Department, and is of the same character as one based upon the triennium 1879-1881 which was compiled under the direction of the late Dr. John S. Billings on behalf of the federal census authorities. From this it appears that a child under five years has a life expectancy of nearly 52 years, as against 41 years thirty years ago. The expectancy of a child between 5 and 10 years has been prolonged from 46 to 51 years, while that of a person between 25 and 30 has increased from 32.6 to 34.3. Between the ages of 40 and 45 the expectancy has decreased six months, and at all ages above 40 there is a constantly increasing diminution ranging from 6 months at 40 to 3 years and 3 months at 85. Up to the age of 40 the expectancy is greater among females than males, and above

40 the reverse is true. Eighty-nine per cent. of the saving of life is in the earlier years before the twentieth year, and this is attributed largely to the decrease in the mortality from malnutrition and gastro-intestinal affections in infancy and from diphtheria and other infectious diseases; while the decreased expectancy of life after the age of 40 is attributed in great measure to the increase in cancer and cardiovascular and renal disease.

Chapel of the Sacred Heart.—The Chapel of the Sacred Heart, on Blackwell's Island, built at a cost of $75,000, was dedicated on May 18 by Cardinal Farley. There is another Roman Catholic chapel on the island, and this one is primarily for those suffering from tuberculosis. Its construction and equipment, therefore, have been of a special character.

Open-Air School.—A new open-air school building being required by the Tuberculosis Preventorium for Children, at Farmingdale, N. J., Mrs. Andrew Carnegie and Mrs. Henry Phipps have each contributed $1000 towards the $10,000 it is estimated to cost.

Recent Bequests.—Among the charitable bequests in the will of the late Theodore Goetze of New York are $6000 each to St. Joseph's Hospital and the Seton Hospital for Consumptives, and $5000 each to St. Mark's Hospital and the German Hospital and Dispensary.

Two Centenarians.—Mrs. Jane Rich, a respected resident of Mount Vernon, N. Y., died from cardiac disease on May 18, at the age of 100 years and one month.

Bartholomew Gulguski, a native of Austria, died on May 19 in Brooklyn, N. Y., at the alleged age of 104 years.

Current Literature.

Medical Record.

May 17, 1913.

1. Adami, J. G. *Certain Elementary Concepts in Education Applied to Medicine.*
2. Syms, P. *The Prevention and Cure of Cancer.*
3. Meyer, W. *The Surgical Treatment of Cancer of the Esophagus.*
4. Soper, G. A. *The Purification of New York Harbor.*
5. Rawls, R. M. *Cancer of the Uterus.*

May 24, 1913.

1. Fishberg, M. *Abortive Pulmonary Tuberculosis.*
2. King, W. H. *A Consideration of the Therapeutics of Intestinal Auto-Intoxication.*
3. Maverick, A. *Blunders Made by Nature. The Part Played by Nature in Causing Diseases of the Genito-urinary Organs and the Skeleton.*
4. Rankin, E. G. *The Compulsory Detention of the Homeless Tuberculous.*
5. Cunningham, W. P. *Tuberculides.*
6. Brady, W. *The Prevention of Adenoids.*
7. Bull, C. P., Jr. *A Drop Method of Giving Ether with a Closed Inhaler.*

New York Medical Journal.

May 17, 1913.

1. Biggs, H. M. *Venereal Diseases.*
2. Swift, H. F. *Dispensary Facilities for the Treatment of Syphilis.*
3. Keyes, E. L., Jr. *Dispensary Treatment of Gonorrhea.*
4. Goldwater, S. S. *Hospital Accommodations for the Treatment of Venereal Diseases.*
5. Longcope, W. T. *The Relationship of Syphilis to Internal Medicine.*
6. Gleason, J. H. *Hypertrophy of the Prostate.*
7. Upshur, J. N. *Gastro-intestinal Therapy.*
8. Friedman, H. M. *Medical Experts.*
9. Kennedy, J. C. *The Surgical Aspect of Gastric Ulcer.*
10. Suggett, O. L. *Neosalvarsan.*

May 24, 1913.

1. French, T. R. *Nitrous Oxide Gas, Essence of Orange Ether, and Sequestration in General Anæsthesia for Operations in the Upright Position.*
2. *Satterthwaite, T. E. *Recovery in a Case of Influenzal Meningitis Complicated by Pneumonia.*
3. Dyer, I. *Should an Internship Be Required?*
4. Kopetsky, S. J. *The Menière Symptom Complex.*
5. Pratt, J. A. *Direct Laryngeal Examination.*
6. Maloney, W. J. W. A. *The Enhancing of Auditory Acuity by Psychological Methods.*
7. Jackson, A. B. *The Treatment of Tuberculosis.*
8. Talmey, B. S. *Sexual Problems of Today.*
9. Ballin, M. J. *A Case of Total Deafness Following a Dose of Quinine.*
10. Lynch, K. M. *Gastroptosis and Coloptosis Transversa as Seen from Post-Mortem Examinations.*

2. Satterthwaite reports what appears from the history to be a typical severe pneumococcus pneumonia with meningeal symptoms. "The sputum was rusty and streaked with blood. No influenza bacilli were found in it but the diplococcus of pneumonia (Friinkel's) was discovered." No lumbar puncture was done, as "the influenzal bacillus is not always found even in the fresh spinal fluid." The diagnosis "was made on the first day the patient was seen, so that the presence of the influenzal bacillus as a factor in the diagnosis was negligible." It is hard to believe that the writer expects this case to be accepted as one of influenzal meningitis without bacteriologic evidence. The only basis for the diagnosis given is the history that during the previous week the patient "had been suffering from prostration, cough, bronchitis, and the usual manifestations of a mild influenza (grippe), which had kept him indoors, though he had not called in a physician." [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 24, 1913.

1. *SMITH, T. *An Attempt to Interpret Present-Day Uses of Vaccines.*
2. HALL, F. P. *A Plea for an Institute of Human Embryology.*
3. SCRIPTURE, E. W. *Speech Without a Larynx.*
4. HEINEMANN, P. G. *The Germicidal Efficiency of Commercial Preparations of Hydrogen Peroxid.*
5. *CECIL, A. B. *A Method of Performing External Urethrotomy in Impassable Stricture.*
6. BASS, M. H. *Acute Rheumatic Orchitis. Report of a Case Associated with Erythema Nodosum and Acute Torticollis in a Child Aged Two and One-Half Years.*
7. BACHMANN, R. A. *Venereal Prophylaxis: Why It Sometimes Fails.*
8. LUCAS, W. P., AND OSGOOD, R. B. *Transmission Experiments with the Virus of Poliomyelitis. Finding the Virus in the Nasal Secretion of a Human Carrier Four Months After the Acute Stage of a Second Attack of Poliomyelitis.*
9. ROSENAU, M. J. *The Mode of Transmission of Poliomyelitis.*
10. HOPKINS, J. G. *A Method for Standardizing Bacterial Vaccines.*
11. HESS, A. F. *Report of a Group of Infants Infected by a Tuberculous Attendant.*
12. HAZEN, H. H. *Oily Injections of Salvarsan—A Warning.*
13. JONES, E. M. *New Ether Pad and Cone.*
14. MYERS, B. L. *A Method of Controlling Rectal Hemorrhages.*
15. TOUART, M. D. *A Plaster-of-Paris Splint.*
16. JENNINGS, J. E. *A New Tonsillectome.*
17. POWER, H. *An Original Method of Testing for Potassium Iodid in the Urine.*

1. Smith's article on vaccines gives a comprehensive and learned exposition of the subject and is well worth study.

5. Cecil uses a solution of 1 gm. medicinal methylene blue to 200 c.c. of distilled water injected into the urethra before operation for stricture. This stains the urethral mucous membrane dark blue and makes the finding of the tract back of or at the stricture easy. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

APRIL, 1913.

1. *DEAVER, J. B. *A Year's Work in Hysterectomy.*
2. *JOSLIN, E. P. *Diabetic Standards.*
3. RIESMAN, D. *High Arterial Pressure: High Pressure Hypertrophy of the Heart.*
4. *LEE, R. I., AND WHITE, P. D. *A Clinical Study of the Coagulation Time of the Blood.*
5. PHILLIPS, J. *The Value of Massage in the Treatment of Various Disorders in Children.*
6. *HILLMAN, O. S. *Some Hematological Findings in Pellagra.*
7. NEUHOF, S. *Complete Heart-block, with Rapid Ventricular Activity.*
8. *ERDMAN, S. *Acute Effects of Caisson Disease or Aeropathy.*
9. *BASSOE, P. *The Late Manifestations of Compressed Air Disease.*
10. *WESSLER, H. *Persistent Ductus Botalli and Its Diagnosis by the Orthodiagraph.*
11. THOMAS, T. T. *A Study of Empyema, with Special Reference to the Feasibility and Importance of Dependent Drainage.*
12. *FISKE, C. N. *The Effects of Exposure to Intense Heat on the Working Organism.*

1. Deaver's article is an analysis and summary of 109 cases of hysterectomy for various conditions, with conclusions as to their teachings with regard to the indications for operation. With regard to fibroids, while it is not stated that all fibroids should be removed when discovered, the presence of any symptoms is made an indication for operation. Waiting for the menopause in the hope of their disappearance is condemned. In 13 cases the uterus was removed on account of hemorrhage on suspicion of the presence of carcinoma, in two of which the suspicion was confirmed. The mortality of the series was one-tenth of one per cent.

2. Joslin's article is a report of certain cases illustrating what is to be considered as successful response to dietetic treatment in cases of diabetes of various types. In all instances the patients were observed over a period of many years with careful regulation of diet.

4. Lee and White report a new method for testing the coagulation of the blood, and show that in the 125 cases tested the tendency to bleeding corresponded closely with the coagulation time so determined. The test is performed by withdrawing blood from a vein by a glass hypodermic syringe and discharging it into a small test tube, which is rotated endwise every thirty seconds until the blood maintains its surface contour when the tube is inverted.

6. Hillman's studies of the blood in pellagra have not resulted in constant findings, but demonstrate in some cases chloranemia, leucocytosis or lymphocytosis.

8. Erdman, from the constant occurrence of gas emboli in the veins and right heart of autopsied cases of caisson disease, accepts the theory that gas embolism is the cause of symptoms. Analysis of gas aspirated from the right heart of one case showed nitrogen 80% and CO_2 20%.

9. Bassoe describes the occurrence of certain late manifestations or permanent results of compressed air disease, and reports illustrative cases. These fall into three classes: (1), cases in which spinal cord symptoms suggested the name "caisson myelitis"; (2), cases of permanent joint affections typical of arthritis deformans; and (3), cases of permanent ear affections.

10. Wessler and Bass report five cases in which the diagnosis of persistent ductus arteriosus is supported by strong evidence, and reproduce the fluoroscopic tracings of these cases, showing in all a prominent shadow, which is taken to represent the pulmonary artery.

12. Fiske's article describes the occurrence of heat exhaustion and prostration on war vessels and summarizes numerous reports of conditions under which these disorders have occurred. The factors suggested as contributory are numerous, but the point most emphasized is the author's belief that imperfect circulation of air is of no less importance than high temperature and humidity. [F. W. P.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

MAY, 1913.

1. *FOERSTER, O. *On the Indications and Results of the Excision of Posterior Spinal Nerve Roots in Men.*
2. BAUER, A. *Discussion of Prof. Foerster's Paper.*
3. *HECHT, D'O. *The Surgery of Spinal Cord Tumors from a Neurologic Viewpoint.*
4. OCHSNER, A. J. *The Field of Usefulness of the Clinical Congress of Surgeons of North America.*
5. *NEUHOF, H. *Experimental Ligation of the Portal Vein; Its Application to the Treatment of Suppurative Pylephlebitis.*
6. *SCHLIMPERT, H. *Concerning Sacral Anesthesia.*
7. *MURPHY, J. B. *Osteoplasty.*
8. STANDISH, M. *Extirpation of the Lachrymal Sac.*
9. KANAVEL, A. B. *A Consideration of Final Results in Hypophyseal Surgery.*

10. Huffman, O. V. *Ectopic Pregnancy Associated with Anomalous Fallopian Tubes.*
11. Frazier, C. H. *Certain Problems and Procedures in the Surgery of the Spinal Column.*
12. *Trout, H. H. *Proctoclysis—an Experimental Study.*
13. Peterson, R. *The Present Status of the Radical Abdominal Operation for Cancer of the Uterus.*

1. Foerster gives as the indications for excision of the posterior spinal nerve roots: violent neuralgic pains of whatever origin, the visceral crises in tabes and spasticity and spastic paralysis. His article is thoroughly convincing and well illustrated with excellent examples of cases.

3. Hecht gives his reasons for believing that the surgery of the spinal cord in the case of tumors should be of the most radical nature.

5. Neuhof shows experimentally that gradual ligation of the portal vein is perfectly compatible with life and advises this operation in all cases of suppurative plyephlebitis.

6. Schlimpert's excellent article on sacral anesthesia is well worth the careful study of any one interested in this new form of anesthesia. It seems as if this was a method of future promise, especially for the operations of gynecology and the anal region.

7. Murphy's article on osteoplasty is a revelation of the tremendous possibilities in this line of surgery. The article does not lend itself to review, but is well worth study and is beautifully illustrated.

12. Trout, in treating over 2000 cases by proctoclysis after operation, shows conclusively that ordinary tap water is better borne, is more efficient in relieving thirst and does less harm than the so-called normal, but often not isotonic—salt solution. He also shows how much harm can be and undoubtedly is done by the intravenous injection of salt solution, which is not isotonic because it contains too much salt. [E. H. R.]

Münchener Medizinische Wochenschrift.

No. 17. April 29, 1913.

1. Klein, G. *Roentgen-ray Treatment of Carcinoma of the Uterus, Breast and Ovaries.*
2. Hirsch, G. *Roentgen-ray Treatment of Myoma and Fibrosis of the Uterus.*
3. Riemer. *The Alkalinity of Media in Its Relation to the Agglutinative Powers of Typhoid Bacilli.*
4. Froesch, H. *A Complement Fixation Reaction in Congenital Feeble-mindedness and Other Degenerative Processes of the Central Nervous System.*
5. Halpern, J. *The Sero Diagnosis of Tumors by Deviation of Complement.*
6. *Hermann, F. *The Use of Abderhalden's Pregnancy Reaction.*
7. *Faulhaber. *The Diagnosis and Treatment of Chronic Ulcer of the Pylorus.*
8. Schmidt, J. E. *Stenosis of the Small Intestine.*
9. Hüssy, P. *A Case of Fatal Peritonitis After Cervical Dilatation.*
10. Lewinsohn, B. *A New Heart Plexímeter.*
11. Grund. *Atrophic Myotonia (Concluded).*
12. v. Reichmann. *A Method of Estimating the Pressure of Cerebro-spinal Fluid.*
13. V. Düring, E. *The Seat of War in Montenegro.*

6. Hermann has made the Abderhalden pregnancy test in over one hundred cases. It must be made according to Abderhalden's technic in every detail. What few errors in diagnosis have been made have shown a positive reaction in non-pregnant women. Hermann has never seen a negative reaction when pregnancy exists. Hermann believes that the reaction is of great value. He considers it of as much importance as any other serological investigation.

7. Faulhaber's article on chronic ulcer of the pylorus will be reviewed in the next number. [R. F.]

No. 18. May 6, 1913.

1. Sehrt, E. *The Thyrogenic Etiology of Hemorrhagic Metropathies, with Remarks on the Theory of Eclampsia and Repeated Abortion.*
2. Gebb, H. *Experimental and Clinical Studies on the Chemotherapy of Diplo-bacillus Infections in the Human Eye.*
3. *Bernoulli, E. *The Influence of Digitalis on Cardiac Action After Muscular Work.*
4. Kielluethner. *The Value of Intra-vesical Operations.*
5. Hahn, H. *The Successful Treatment of Bleeding in Hemophilia by the Thermo-cautery.*
6. *Merckens, A. *A Case of Severe Melena Neonatorum Cured by the Injection of Defibrinated Human Blood.*
7. Ertl, F. *Clinical Experiences with Drugs for Alleviating Labor Pains.*
8. Spitzy, H. *An Instrument for the Radical Cure of Phimosis.*
9. Jores, L. *An Improved Method for the Preservation of Anatomical Specimens.*
10. Sehrwald, E. *Erysipelas and Tatooing.*
11. Falkner, A. *The Treatment of Tuberculous Peritonitis by Iodides.*
12. Cohn, P. *The Treatment of Iritis by Sodium Cinnamate.*
13. Gunsett, A. *A Source of Error in Determinations by Sabouraud-Noiré Tablets.*
14. Freudenberg, A. *A Perineal Pad Heated by Electricity.*
15. Artenau, G. *Bad Reichenhall.*
16. *Faulhaber. *The Diagnosis and Treatment of Chronic Ulcer of the Pylorus. (Concluded.)*
17. Wilke, A. *Arnold Heller.*

3. Bernoulli measured the rate, regularity and force of the pulse in normal individuals after specified amounts of work in a tread mill before, while and after digitalis was given in medicinal doses. The results of these observations show that the normal heart muscle at work does not react in any demonstrable fashion to digitalis. Therefore digitalis is not a cardiac tonic in the usual sense of the word. Bernoulli concludes that the use of digitalis is not indicated to spare the reserve strength of the heart in surgical operations, nor should beneficial results be expected in cases of decompensation as long as the conditions which caused decompensation are maintained. In other words, digitalis can only work to best advantage when the heart is rested as much as possible by quiet in bed.

4. Merckens assumes that melena neonatorum is due to lack of thrombin in the blood, by which the normal coagulability is lost and a tendency to hemorrhages from mucous membranes is produced. For treatment of this condition he advocates the intramuscular injection of twelve c.c. of defibrinated blood. The blood is drawn from a healthy individual, defibrinated by shaking with glass beads, and allowed to stand for half an hour before injection. In this way toxic manifestations are avoided. The bleeding is relieved by a direct stimulation to thrombin formation or by the addition of ferments which stimulate blood coagulability. He describes a case treated in this fashion with marked benefit.

16. Faulhaber believes that chronic ulcer at the pylorus may be recognized by as sharply defined a symptom complex as characterizes duodenal ulcer. There are three cardinal symptoms:—

1. Pain, coming periodically after intervals of freedom for months or weeks, and beginning within two hours after the ingestion of food.

2. Continued hypersecretion. This may consist of anything more than twenty c.c. in a fasting stomach, but is more marked after a test meal. The gastric

contents usually contain an excess of free HCl and pepsin.

3. Pylorospasm, an important symptom, not occurring in hyperchlorhydria without ulcer, nor in gastric atony with organic obstruction. It is recognized by the tube and the x-ray. The fasting contents contain no sarcinae or gross food residue. The bismuth test meal remains in the stomach for at least six hours while the peristalsis is normal or increased.

Faulhaber has found the treatment of this condition unsatisfactory, either by medical or surgical procedures. But surgical intervention seems indicated since the tendency to chronicity is mainly due to a vicious circle formed by the pylorospasm and hypersecretion. Whether excision of the ulcer or gastroenterostomy should be made cannot be stated. In any case the outlook is unfavorable. [R. F.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 16. APRIL 17, 1913.

1. ZANGEMEISTER, W. *Puerperal Inversion of the Uterus.*
2. ARNETH. *The Action of Thorium-X on the Life of Blood Cells. (To be concluded.)*
3. FRÄNKEL, E. *Tubercle Bacilli in the Circulating Blood.*
4. SHIBAYAMA, G. *The Action of Serum and Toxin in Rectal Use.*
5. *NEMMSER, M. *Repeated Serum Injections and Hypersusceptibility.*
6. ANITSCHKOW, N. *The Pathologic Changes of Internal Organs in Experimental Cholesterin Ester Fattening.*
7. RENSS. *Diaphragmatic Hernia or Unilateral High Diaphragm.*
8. HARZBECKER, O. *The Origin of Pectineal Hernia.*
9. VON GAZA. *Tissue Necrosis and Arterial Erosion Bleeding After Use of Old Novocain Solutions for Infiltration Anesthesia.*
10. REINHARD, H. *The Drug Treatment of Inadequate Pains During Labor.*
11. LANG, J. *The Therapy of Inflammations in the Mouth, Pharynx, and Larynx.*
12. FORBÁT, A. *Fragments in the Sputum of Consumptives.*
13. COUTS, M. *The Perennial Intermittent Fever of Mucous Colitis.*
14. ROSENHAUPT, H. *The Drug Treatment of Nervous Vomiting in Early Childhood.*
15. DUTOIT, A. *High Altitude and Diabetes.*
16. SPALTEHOLZ, W. *Introduction into the Study of Medicine.*

5. Nemmser considers that the danger of anaphylaxis after repeated serum injections is much less than the danger of omitting the specific therapy in cases in which it is urgently necessary. Until, however, the question of anaphylaxis is wholly cleared up, it would be advisable not to use the serum needlessly or in moribund cases, in order not to discredit the agent in the eyes of the public. In the preparation of curative sera all possible measures must be employed to diminish their anaphylactic action, as warming the serum to 56° C. [R. M. G.]

No. 17. APRIL 24, 1913.

1. TRENPEL, G. *Pulmonary Gangrene and Its Treatment.*
2. HERRINS, K., AND ROSENBERG, M. *Marmorek Serum in the Treatment of Pulmonary Tuberculosis. (To be concluded.)*
3. ALLARD, E. *Cymarin, a New Heart Tonic.*
4. * SCHÜRMANN, W., AND HAJÓS, E. *Experiences with Tellurium Media in the Bacteriologic Diagnosis of Diphtheria.*
5. ARNETH. *The Action of Thorium-X on the Life of Blood Cells. (Conclusion.)*
6. SAISAWA, K. *Contribution to the Etiology of Multiform Exudative Erythema.*
7. ZALOZIECKI, A. *Autolytic Properties of Guinea-Pig Serum and Thereby Conditioned Sources of Error in the Wassermann Reaction.*
8. JOLOWICZ, E. *Autolytic Properties of Guinea-Pig Serum and Thereby Conditioned Sources of Error in the Wassermann Reaction.*
9. *GROEDEL, T., AND GROEDEL, F. M. *The Technic of Roentgen Kinematography. (Third Communication.)*
10. WEICKER. *Experimental Investigations of the Zenner Tuberculosis Preparation "Tebesapin."*
11. MÖLLERS, B. *Rejoinder to the Above Remarks of Dr. Weicker Regarding Gastric Administration of Tuberculin Preparations.*
12. SCHALL, M. *Technical Novelties in the Domain of Medicine, Public Hygiene, and Care of the Sick.*
13. MEYER-LIERHEIM. *Tuberculosis and Isolation.*
14. HERRINS. *Transactions of the Prussian Chambers of Physicians in the Year 1912. (To be concluded.)*
15. *HOLLÄNDER, E. *Medico-Historic Remarks on the Human Aquarium.*

4. The authors believe that the addition of tellurium to Loeffler's serum-agar makes a medium which facilitates the bacteriologic diagnosis of diphtheria.

9. The authors describe, with diagrams and plates, their method of combined cardiac Roentgen kinematography and electrocardiography.

15. Holländer contributes a record and account of a medieval frog-swallower, similar to the human aquarium, described in an article by Sternberg, reviewed in the issue of the JOURNAL for April 3, 1913, (Vol. clxviii, No. 14, p. 524). [R. M. G.]

No. 18. MAY 1, 1913.

1. KOLLE, W., HARTOCH, O., ROTHERMUNDT, M., AND SCHÜRMANN, W. *New Principles and New Preparations for the Treatment of Trypanosome Infections.*
2. HERRINS, K., AND ROSENBERG, M. *Marmorek Serum in the Treatment of Pulmonary Tuberculosis. (Conclusion.)*
3. HAMPELN, P. *Pulmonary Hemorrhage in Perforated Aortic Aneurysms.*
4. KENPER, E. *Melubrin as an Antirheumatic and Antipyretic.*
5. PANKOW. *The Anatomic Foundations of Placenta Previa, and Their Importance in Treatment.*
6. HEGLER, C., FRAENKEL, E., AND SCHUMM, O. *The Theory of Congenital Hematoporphyry.*
7. WEIHRAUCH, K. *Determination of the Resistance of Erythrocytes in Tuberculosis.*
8. HOLLÄNDER, E. *The Genesis of Omental Tumors.*
9. QUADFLIEG, L. *Contribution to M-Stern's Modification of the Wassermann-Neisser-Bruck Reaction.*
10. SUNDE, A. *Frontal Herpes Zoster with Bacterial Finding in the Gasserian Ganglion.*
11. FISCHER, W. *The Frequent Appearance of Exanthems after the Use of Copaiba Balsam.*
12. WIEMANN. *Cartilage Reefing in Protruding Ears and Othematoma.*
13. HERRINS. *Transactions of the Prussian Chambers of Physicians in the Year 1912.*
14. DEICHERT, H. *Leibniz on Practical Medicine and the Organization of Public Hygiene.*

No. 19. MAY 8, 1913.

1. *VON BEHRING, E. *A New Protective Measure Against Diphtheria.*
2. SCHUBERG, A., AND BÖING, W. *The Mode of Infection in Trypanosome and Spirochetal Diseases.*

3. Uhlenhuth, P., and Mulzer, P. *The Infectiousness of the Milk of Syphilitic Women.*
4. Krause, P. *The Occurrence of Varicella in Adults.*
5. Queckenstedt. *Pernicious Anemia.*
6. Gudzent, F. *The Change of the Blood-Picture in Chronic Articular Rheumatism.*
7. Plesch, J. *Emphysema.*
8. Frühwald, V. *Contribution to the Knowledge of Postoperative Fatalities in Abnormal Smallness of the Aorta.*
9. Bönniger, M. *Gastric Function and the Mind.*
10. Abbott, E. G. *The Correction of Lateral Spinal Curvatures.*
11. Senator, M. *More on the Etiologic Relations Between Rheumatics and Nasal Diseases.*
12. Reckzeh. *The Question of the Cause of Origin of Hemorrhoidal Knots.*
13. Sato, K. *A New Hemometer.*
14. von Lorenz. *Roentgen Photographs with Light-Sensitized Paper.*
15. Krenzfuchs, S. *Roentgen Treatment in Gynecology.*
16. Hirschberg, J. *Marcus Eliezer Bloch* (1723-1799).
17. Marnlock, G. *Two Letters of Frederick the Great to Dr. Bloch.*
18. Strohmayer, W. *The Question of Incest.*

1. Von Behring reports at length his new method of active immunization against diphtheria. His preparation is a mixture of very strong diphtheria toxin with antitoxin, in such proportion that in the guinea-pig test it shows only a slight toxin excess. One or two inoculations of this, he believes will produce a protracted immunity to diphtheria, and he reports cases which seem to give warrant to this belief. [R. M. G.]

Deutsche Zeitschrift für Chirurgie.

April, 1913. Band 122. Heft 1-2.

1. Muroya, S. *Experimental Investigations on Novocain in Paravertebral Injection.*
2. Goebel, W. *Surgical Experiences from the Balkan War.*
3. Polacco, A., and Neumann, A. *The Etiology, Symptomatology, and Pathogenesis of Acute Intestinal Strangulation.*
4. Speck, W. *Radial Dislocation of the Hand, with Isolated Volar Luxation of the Scaphoid.*
5. Warschaner, O. *Free Fascia Transplantation.*
6. Mayesbrina, J. *A Case of Erythromelalgia Successfully Treated by Foerster's Operation.*
7. Kuhn, F. *Sugar Infusion as a Prophylactic Against Thrombosis.*
8. *Dumont, F. L. *Experimental Contributions to the Pathogenesis of Acute Hematogenous Osteomyelitis.*
9. *Leriche, R. *Surgical Reflections on Heliotherapy, Especially in Tuberculous Affections in Childhood.*
10. Bertelsmann. *Shall One Operate in the Intermediate Stage of Acute Appendicitis?*
11. Bertelsmann. *The Technic of Appendectomy.*
12. *Leriche, R. *Stretching the Solar Plexus for Tabic Gastric Crises.*
13. de Groot, S. B. *Rejoinder to Ritter's Critical Observations on My Work on the Appearance and Disappearance of Lymph-Nodes.*

8. Dumont finds, from a series of animal experiments that it is possible to produce by intravenous injection of hemolytic staphylococcus cultures, without trauma, in young rabbits an acute hematogenous suppurative osteomyelitis whose clinical picture corresponds to that of man. For the production of osteomyelitic foci, the virulence and not the variety of staphylococcus is of importance. There is no specific "bacillus osteomyelitidis." The etiology of the disease rests on the anatomic relations of the bone vessels and the biologic properties of the staphylococci. The article closes with an admirable alphabetic bibliography of 153 titles on the subject.

9. Leriche believes that to Poncet belongs the credit for first demonstrating the efficacy of heliotherapy in tuberculous and non-tuberculous affections.

12. Leriche describes a case in which stretching the solar plexus relieved tabic gastric crises, after section of the sixth, seventh, eighth, ninth, and tenth posterior thoracic nerve roots had failed to give relief. [R. M. G.]

Revue de Chirurgie.

May, 1913.

1. *Forgue, É., and Étienne, E. *Pathologic Anatomy of Tendinous Synovitis with Riciform Grains, and the Mode of Formation of the Capsule and of the Grains.*
2. Bérard, L., and Alamartine, H. *Accidents and Technic of Jejunostomy.*
3. Venot, A., and Parcelier, A. *Primary Carcinoma of the Jejuno-Ileum.* (*To be continued.*)
4. Potel, G., and Veandeau. *The Surgery of Tumors of the Spine and of the Spinal Cord.* (*To be continued.*)

1. Previous authors have described three layers in the capsule of tendinous synovitis with riciform grains. Forgue and Etienne believe they have demonstrated that the internal layer is not continuous, and that the synovial cavity is therefore bordered by the middle layer, which contains structures analogous to these grains. They consider that none of the previously advanced theories of the disease is free from criticism, but that the grains are only a formation from a follicular point of departure and resulting from the double process of destruction and cicatrization, characteristic of tuberculosis, the former manifested by modifications of the follicle, the latter by the participation of the connective tissue in the formation of the grains. [R. M. G.]

Bullettino delle Scienze Mediche.

April, 1913.

1. Beccari, L. *The Function of the Sinus, and Automatism of the Frog's Heart.*
2. *Longo, C. *Concerning the Action of Sodium Chloride on Normal and Pathologic Kidneys.* (*To be continued.*)

2. Longo, in a series of clinical and experimental studies, considers the importance of sodium chloride in the dietetic régime of nephritics. [R. M. G.]

Miscellany.

NOTICE OF THE DEATH OF AMOS BANCROFT.

[The following notice of the death of Amos Bancroft, M.D., was found among the papers and in the handwriting of his kinsman, Dr. George C. Shattuck (1783-1854).]

Amos Bancroft* was the 4th son of Capt. Edmond Bancroft, a farmer and militia officer, occupying a reputable position in society at Pepperell, Middlesex County and Common-

* Dr. Amos Bancroft took his A.B. at Harvard in 1791, his M.B. in 1794, M.D. 1811, and died in 1848.

wealth of Massachusetts. His mother's maiden name was Rachel Howard, daughter of a respectable farmer in Chelmsford. She had been previously married to Jonathan Barron, a subaltern officer in the provincial army, who was killed in battle on the shores of Lake George in what was called the morning fight, a battle between the English and French, the English army commanded by Sir William Johnson. The first fruits of this second marriage was a daughter, who was married to Timothy Farrar, for more than forty years judge in the courts of New Hampshire, and who died recently at an advanced age, exceeding a century. Amos was born May 23d, 1767, in a heroic age when fathers were wont to offer up to their country on the altar of liberty their oldest sons. Edmond and Jonathan, his eldest brothers, belonged to Prescott's Regiment, the oldest of whom, while encamped on the tented field spent out on Prospect Hill, Charlestown, died of the natural small pox. Jonathan, a mere stripling, fired with the enthusiasm of the day, enlisted during the war, the War of Independence. He recently departed at the age of 86. Thomas, the 3d son, remained at home to aid in cultivating the farm for the support of the family and payment of the taxes levied to carry on the war. He also recently died at the age of 82. The fourth son, the subject of our present notice, was sent by his father to Harvard University, and here he was graduated in 1791. He afterwards studied medicine with Dr. Oliver Prescott of Groton, simultaneously attending the medical lectures delivered at Cambridge by Drs. Warren, Waterhouse and Dexter. Experience as army surgeon in the War of Independence had impressed on the mind of Dr. Warren the importance of a knowledge of anatomy. He founded the medical school, taking on himself the two most difficult branches, anatomy and surgery. I say difficult, because the people demanded skill in surgery, and at the same time were ready to stone to death any violation of the sanctuary of the grave, however ignominious or vile had been the life of the tenant. At this time was confided to young Bancroft procuring a subject for dissection. He had recourse to the gallows at Worcester, where had been hung a murderer and parricide. Bancroft had marked the grave, and favored by darkness cautiously proceeded to the spot, determined to present an acceptable offering to science. While exhuming, he learned he was watched. He fired from a pistol a blank cartridge, frighted from the field the conscientious opponents of dissection, and conveyed to the eloquent professor of anatomy the subject. Ever afterwards Dr. Bancroft had the friendship of his teachers and of his medical brethren. This parricide and murderer, had first killed his own father, and afterward, on the hypothesis of insanity, was delivered to the keeping of a humane deputy sheriff, who took pity on him, and afterwards slew this humane intereceder for his life. The bones of Samuel Frost, the name of the criminal, born in No Town,* county of Worcester, have taught osteology in the cabinet of Dr. Bancroft to not a few who have since been useful members of the medical profession, his pupils. Dr. Bancroft commenced the practice of medicine at Westford, and on the death of Dr. Ward of Weston, removed to that town, where he acquired an extensive practice. In 1811 an opportunity to purchase an eligible farm in Groton, the residence of the accomplished speaker of the House of Representatives, the Hon. Timothy Bigelow, Dr. Bancroft removed to Groton. There he divided his attention between medicine and agriculture, in both of which he acquired reputation. The sustained corn and the rescued from the grave both did sound his praise. As a physician his characteristic was discrimination, decision, and unflinching fidelity to his patient. He enjoyed extensively the friendship of his professional brethren. His youngest son he has educated to the profession to inherit his reputation.

As a gentleman he was courteous, as a citizen patriotic, as a neighbor obliging, as a friend given to hospitality, as a husband kind and faithful, as a father instructing his children to prepare for independence by wholesome lessons of self dependence. His infirmities were the familiar infirmities of his profession and of old age. He often deferred claims for compensation until his services ceased to be sufficiently remembered, and then enforced payment. He was sometimes offensively tenacious of the rights of property, especially where boundaries in land title were involved.

He left a widow and six children, three sons, and three daughters, the latter of whom are all married to educated men. His oldest daughter, Abigail, is married to the Rev. Ephraim Abbott of Harvard; his second, Lucy Miranda, is married to George Thacher, Esq., of Monroe, in the county of Waldo and state of Maine; and his third daughter, Sarah Savage, is married to the

* No Town, in which Samuel Frost, the criminal, was born, was the name given to a part of Leominster in olden time

Hon. Asa F. Lawrence, Esq., counsellor at law, of Pepperell, in the county of Middlesex and Commonwealth of Massachusetts. He lost, a few years ago, an accomplished daughter, Mary Ann, who died of consumption.

His oldest son, Charles, is a farmer on the homestead, his second is in commerce in the city of New York, and his third son and youngest child is a physician in Groton, his native place.

There is a thrilling interest in the account of the last day of his life and the incident of his death. At 1.00 a. m. he called on a beloved sister of a departed wife at the house of the Chief Justice of this Commonwealth, at half past ten o'clock he went to State Street, where he declined the further attendance of a friend, such was his indomitable habit of independence, or rather of self dependence.

From the Granite Bank he passed up on the south side of the street in front of the Merchants' Exchange, where he was knocked down by a spirited horse moving with the acquired momentum of rapid driving over the slippery pavement, notwithstanding a vigorous effort of the driver to rein him in until brought upon his haunches. Deaf and purblind, the aged physician was a ready victim to the stunning blow. Senseless and blood pouring from his ears, a vigilant and humane police officer, stationed by a good city government there to protect the citizens from accident, bore him in his arms to a neighboring apothecary's shop, where a recumbent posture and rest and volatiles favored returning circulation and respiration. When sufficiently revived, he was conveyed in a carriage accompanied by Dr. Kneeland and Dr. Salter, to the residence of his lady's brother, Mr. Samuel Kneeland, where the anxious wife met him to witness his death. He revived into a consciousness of his condition and suffering, exclaimed, "Help me if you can." Soon, after an ineffectual effort to puke, he sank into a lethargy, experiencing a death-like one by apoplexy.

A COURT PHYSICIAN UNDER THE THIRD EMPIRE.

An item in a recent issue of *La Chronique Medicale* notes the publication of a book, "La Famille Impériale," containing the private letters writen in 1856 to his wife by Dr. Barthez, then physician to the infant Prince Imperial of France at St. Cloud. These letters, briefly abstracted in the issue of the *British Medical Journal* for May 17, 1913, recount in considerable intimate detail the life of the imperial family, besides recording the doctor's trials and perplexities in the discharge of his duties.

The physician had to use a good deal of diplomacy in the exercise of his functions. Neither Napoleon 111 nor the Empress Eugénie had much faith in rational medicine. The empress professed to believe that all doctors were ignoramuses who never worked. She scoffed at their endeavors to cure diseases and prevent death, a thing which she declared to be impossible, since when the hour had struck the player on the stage of his life must make his exit. This fatalistic attitude, though unreasonable, is at any rate intelligible. But it is not easy to understand how Her Majesty could have been led to say that doctors never gave a thought to the relief of suffering! This statement is all the more amazing since the Empress who—wrongly as it turned out—believed herself to be pregnant, expressed a wish that she should be chloroformed when the expected hour of sorrow arrived. "It is even possible she may compel Jobert to give her the anesthetic without cause, solely that it may be ascertained whether she could be pregnant." The Emperor thought there was an immediate remedy for every pain. Induced pain he bore with stoical fortitude. He rode on horseback with sores on the thighs and legs caused by recently applied blisters. He did not complain of the production of pustular eruptions on the back by the use of irritants. It was even believed that he applied moxas to himself. To all this he submitted with such patience that no one about him was aware of his sufferings. This recalls the heroic endurance which he showed at Sedan, when, with a stone in his bladder, he remained on horseback throughout that fateful day. But of "spontaneous pain" Barthez says he was very intolerant. He was subject to cutaneous neuralgia, which made him "indescribably impatient." He reproached the physicians for the failure of their remedies and was inclined to put his trust in any quack he came across. Barthez gives an example of the methods that had to be adopted by an official doctor to make his services acceptable to capricious royal personages. He says: "The Empress was pleased the other day to wet her feet badly. She lunched without changing her shoes, and after lunch did not wish to disturb her attendants, who were reposing. So she kept on her wet shoes, with the result that she caught a tremendous cold, which starting from the nose descended to the throat, then to the bronchi." With some difficulty Barthez induced her to interrupt her course of sea bathing, but she insisted on accompanying a water party on the Nive. There was first a drive in an open carriage, then a sail lasting two good hours, and finally the return in the evening in an open carriage from Bayonne to Biarritz after sundown. Barthez forbade the trip, and even threw himself in mock-heroic style at the

feet of the Empress. She raised him up, punctuating her refusal to obey with a playful slap on the face. Barthez was forced to go in one of the boats. He salved his professional conscience by having a sedative potion made up; this he gave to a gentleman who was to be in the Empress's boat, begging him to make her take it on the way. He thought it likely, however, that the physic was thrown into the river.

Apparenty Macbeth was not the only monarch disposed to put medicine to a baser use than that for which it was intended by the physician.

OPHTHALMIA NEONATORUM IN GLASGOW.

AN item in the issue of the *British Medical Journal* for May 17, 1913, describes a memorandum recently issued by the medical health officer of Glasgow, submitting a report by Dr. Florence Mann on the experience of his department in dealing with ophthalmia neonatorum.

"The report covers a period of seventeen months, during which time 341 cases occurred; this is equal to 9.4 per 1000. In only 31 per cent. of the cases was the gonococcus recovered, but as the taking of swabs becomes more usual it is thought that a higher percentage will be obtained. It is usually regarded as being present in about half the affected cases. In at least 9 per cent. of the cases syphilis was also present, and in contrasting the results of the eye affection in children with and without syphilis Dr. Mann shows that of the non-syphilitic cases 81 per cent. made an absolute recovery, but of the syphilitic cases only 48 per cent. Total blindness followed in 1.2 per cent. of the former and 8 per cent. of the latter. This observation is most significant. In 3.5 per cent. the symptoms developed within twelve hours of birth, 56 per cent. occurred within the first four days, 3.2 per cent. after the fourth day, and 8.5 per cent. after the eighth day. Treatment at home was found to be unsatisfactory in many instances, and such cases were admitted to the reception home. Dr. Mann came to the conclusion that it was wise and even advisable in many instances to take the children into the home without the mothers. Under these conditions the children did well. Written directions are issued by the department for the guidance of the nurses attending the cases."

These data are of interest as affording a comparison of the methods adopted in Boston for the reporting, diagnosis and prophylaxis of ophthalmia neonatorum with those obtaining in this Scotch city of similar size and efficient civic organization.

Correspondence.

CANCER.

BOSTON, May 22, 1913.

Mr. Editor: In an editorial on Cancer in to-day's issue of the JOURNAL, the following statement occurs: "As yet, however, only in the knife lies any hope of recovery from cancer." Probably the writer had in mind the deeper forms of this disease only. If, however, he included superficial cases, I think the statement might well be qualified, in view of the success obtained in healing some forms of superficial cancer with pure radium bromide both in Europe and in this country, and to particularize, during the past ten years at the Boston City Hospital. No one familiar with the results of radium treatment will question its value and efficiency in suitable cases and, in my opinion, radium in its field can and should displace the knife wherever practicable.

Yours very truly,
FRANCIS H. WILLIAMS, M.D.

CHANGES IN MEDICAL CORPS, U. S. NAVY, WEEK ENDING MAY 24, 1913.

STONE, E. P., medical inspector. Detached from Navy Rectg. Station, Denver, Col., to sick leave.

PRYOR, J. C., surgeon. Detached from Naval Medical School, Washington, D. C., June 1, '13, to N. Dakota.

PLEADWELL, F. L., surgeon. Detached from *North Dakota* and ordered to Naval Medical School, Washington, D. C.

DESSEZ, P. T., passed assistant surgeon. Detached from *Tonopah* and ordered to *Castine*.

WARNER, R. A., passed assistant surgeon. Ordered to Naval Hospital, Washington, D. C., temporary.

ALLEN, D. G., assistant surgeon. Ordered to Naval Hospital, Newport R. I.

KUSEL, G. C., D.R.C., assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

TURNER, V. E., D.R.C., assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

DONNELLY, WILLIAMS, assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

ENTINGS, E. J., passed assistant surgeon. Detached from Naval Station, Guam, and ordered to Supply.

CURTIS E. E., passed assistant surgeon. Detached from Supply and ordered to Naval Station, Guam.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held in Room 125 of the Copley-Plaza Hotel, Boston, on Tuesday, June 10, 1913, at 2 o'clock.

Preceding the meeting, the Annual Lunch will be served in Room 123 at 1.30 o'clock. Annual reports and election of officers.

The following papers will be read and discussed:

1. Progress of the Criminal Law. Hon. Joseph C. Pelletier, District Attorney for Suffolk County.
2. Medical Expert Testimony. Francis Hurtubis, Jr., Esq., of Boston.
3. Suggestions in Making Autopsies in Case of Suspected Poisons. William F. Whitney, M.D., of Harvard Medical School.
4. Two Cases of Sudden Death. Ephraim W. Norwood, M.D., Medical Examiner, of Spencer.

OLIVER H. HOWE, M.D., *Recording Secretary*.
Cohasset, May 23, 1913.

Original Articles.

PSYCHOLOGY AND THE PHYSIOLOGICAL SCIENCES.

BY ROBERT MAC DOUGALL, PH.D., NEW YORK,

Professor of Psychology, New York University.

THE study of mind has many natural points of contact with the physiological study of the body. Mental and physical activities form a single complex of phenomena, such that conditions in the one field continually force themselves upon attention in a study of the other. In the practical treatment of either mind or body also the correlative system of attitudes and changes must be taken into account. The physiologist, as a matter of fact, does not confine himself to a scrutiny of purely physical functions in his work at large; but notes, often in minute detail, the concomitant fluctuations in consciousness. In certain cases these mental phenomena constitute the only accessible manifestation of subtle physiological modifications which he can trace directly in their earlier and later stages. Where physiology thus becomes schematic or speculative it is just these psychological conceptions upon which it must depend for guidance. In a similar way the psychologist does not limit his view to purely mental phenomena, but finds it important to embrace the correlative system of physiological change as well, whether he seeks theoretical knowledge or its practical application to affairs. It is thus a matter of interest to each science alike to conceive clearly its own scope and its relations to the other.

The sciences contributory to any branch of study fall into two general groups. The first comprises those which afford conceptions necessary to the treatment of its data. These are of methodological value only and render common service to many different forms of investigation. The conceptions of mathematics, for example, are indispensable wherever measurement and computation are required. Geometry and mathematical physics are instruments necessary to all sciences dealing with spacial magnitudes and the relations of ponderable bodies. Units of time are essential to the description of change at large, whether viewed from the physical or the psychological point of view. At the same time these concepts provide none of the special data with which the concrete sciences deal. They afford only the general forms in terms of which its problems are to be stated or its results expressed. As the relation which psychology and physiology bear to this system of concepts is neither unique nor characteristic they need not be further discussed.

The second group of sciences is composed of such as deal with phenomena which the student finds it important to take into account in the description of his own subject matter. For the psychologist there enters into this group all studies of the physical and social concomitants of subjective activity. The general problem of mental science may be described as the correlation of its own special data with the larger world of orderly change which experience presents. These correlations are of two general classes,—those affecting the conditions under which mental activity takes place and those in which its results are expressed. Psychology is related on the one hand to sciences in which the structure and functions of the human body are studied, together with the action upon it of physical agents and changes; on the other, it is indebted to those which deal with the transformations man has wrought in the material world and the institutions in which human ideals are embodied. Thus both the physical and biological sciences and the human and social must be taken into account.

The body and its changes are of significance to the psychologist because they provide a common measure of phenomena for the reduction of which subjective reflection fails to provide a sufficient basis. Within the latter field a logical order alone is discoverable. Uniformity of temporal relations between successive phases or individual constituents of consciousness cannot be established. In order that mental phenomena shall receive this form,—as the general conceptions of science require,—a system of events must be sought within which the conception of uniformity is determinable; and with the elements of this quantifiable and predictable order the individual phenomena of consciousness must be affiliated.

In this respect physiological change is but part of a larger field of transformations associated with changes in the specific contents of consciousness, upon the whole of which the psychologist draws in his work. To the portion of this general field which lies beyond the organism itself he must indeed largely turn. These remote physical changes, it is true, cannot be directly correlated with the reconstructions which occur in consciousness, but must be immediately construed as producing changes in bodily condition. Nevertheless, changes in the latter field are for the most part removed from easy observation and their determination is frequently difficult if not altogether impossible, while the external conditions and agencies are both more readily determinable and constitute the second term of the relation as actually given in consciousness. For example, it is to an opening of the gas-cock and increase in combustion that one naturally turns in explaining a change of brightness in the visual field, not to an extension of the explosion area or a more complete chemical reaction in the nervous centres. Similarly, one's impression of multitude in a stage mob is ascribed to the suggestions which color and movement convey, instead of to such factors as

the amount of reflex pursuit-movements provoked in the eye, and its effects. So also the final arousal of attention is explained in terms of the successive strokes of the gong, not as a summation of overlapping waves of physiological disturbance.

The correlations in terms of which, on this side, the psychologist is to state his results are thus the system of physical agencies which act upon the human body and the nature and activities of the organism itself. The body and its changes afford three groups of facts with which the phenomena of consciousness may be correlated. These are the anatomical form of the body and its parts, the characteristic functions associated with each organ, and the qualitative rearrangement of substances which underlies structural modifications and functional activities alike.

Anatomy, physiology and chemistry thus form a group of sciences which in an especial sense are contributory to psychology. Anatomy includes not only the study of normal forms of structures, but also that whole series of variations which the organism presents; and physiology comprises the investigations of abnormal quite as much as typical functions. Thus, while pathology performs for the psychologist a service identical with that of structural and functional analysis, though within a more limited field, it cannot be regarded as a fourth contributory science, but must logically be considered a special modification of one or the other of these two more general inquiries.

Gross anatomy and histology together constitute the structural analysis of the body. Its study affords the psychologist a general scheme in establishing the mind's formal and organic relations to the world at large. The body is the mind's limiting and determining agent. Upon the system of impressions which its sensory organs make possible depends the form of the perceptual world and the qualitative content of represented as well as presented experience. Similarly upon the character of its supporting structures and system of muscles depend the range and form of reactions which the organism makes to these impressions. The structural scheme of the body at large, together with the special modifications which it presents, thus conditions the qualitative manifoldness of the system of impressions and the interpretation it receives in terms of an objective reality existing in space and time. On the other hand, it defines and limits the use which is to be made of these impressions in the guidance of conduct and realization of human ideals. Upon it, therefore, rests the relational form which experience possesses for each subject.

In order to understand the content and connections of mental phenomena, introspective analysis must, therefore, be supplemented by a study of the physical organism. This inquiry, primarily concerned with nervous reactions as the immediate correlative of consciousness, logically extends to a consideration of the whole structural character of the organism and its ecological relations with the environment. Upon the nature and range of the sensory and motor organs which it possesses and the systematic relations it maintains with the rest of the world depends the characteristic form which consciousness takes in each organic type. Human experience, for example, confronts a world of sights, sounds, tastes, odors and tangible objects because of the particular group of special senses the body possesses; and that world is counted, ordered and related through systematic motor reactions which depend upon the anatomical features of the muscular and supporting structures and the degree of development they have attained.

The body is thus the determining condition of the mind's special features; therefore, in order that a scientific study of the individual consciousness shall be completed a thorough-going examination of mind in all its historical relations is necessary. The developmental processes of the two, as well as their immediate reactions, have parallel courses, and their disjunction as empirically conditioned phenomena is inconceivable. It is, therefore, important for the psychologist to extend as fully as possible his knowledge of the special connections which exist between the form and appearance of particular mental functions and the succession of changes in organic activity and development; for in individual and species alike typical forms of organization are correlated with the reactions of which the organism is capable and the consciousness which accompanies them.

The study of anatomy finds its psychological application in the establishment of correlations between consciousness and its immediate physical conditions. In this connection it performs two services. For specific differences in the qualitative content of consciousness it provides a structural basis, as when visual qualities are referred to the organ of sight and auditory to that of hearing. In the general results of anatomical study the psychological student seeks such a structural basis for each order of sensation and class of mental reaction, if not for every unique modification which introspective observation reveals.

This relation must be read both positively and negatively. In the typical constitution of the body and its development is to be sought the general physical condition of normal consciousness; and in terms of lesion, disturbance of function and arrest of growth, the limitations and pathological modifications which appear in individual life are to be interpreted. Thus the phenomena of vision in the peripheral field, or in color blind subjects, is explained in terms of histology which reveals the modification or lack of certain structural elements in the eye.

Anatomy affords data for an explanation of the processes as well as the constituents of consciousness. The swiftness of sensori-motor re-

flexes in contrast with the slowness of voluntary movements is anatomically explained by the existence of reactive ganglia in the spinal cord and cross-connections which allow the reflection of stimuli at nervous levels far below the cortex. The mapping of brain lesions and degenerations has helped us in understanding both motor paralysis and the various sensory anesthesias. Histology has established in its gross features the structural basis of association and diffusion, in the breaking up and redistribution of bundles of nerve fibres and in the synapses of the neurones.

All this adds no new quality to consciousness, but it brings to view another systematic process of change with which familiar mental modifications may be correlated. The establishment of these connections then becomes the starting-point for a dual prediction. On the basis of symptoms which consciousness presents, and without physical examination, the anatomical locus of a psycho-physical disturbance may be determined; and from the place and character of nervous lesions the specific defect with which it is correlated in consciousness may be inferred.

But anatomy renders still another service. The discovery of new structural complexities in the organic basis of consciousness may lead to a re-examination of the psychological data, and a fresh determination or classification result. A reconstruction in our conception of the character and relations of external stimuli frequently provokes a transformation in the form of perception. The sound which we had referred to a room above us may perceptibly shift in its location at the moment when we apprehend that it actually originates in the room below. In the same way a change in our conception of the organic basis of experience may affect the character of the latter. The information that two points have been applied to the skin, in experiments on touch discrimination, has such an effect when an illusion of singleness had previously existed. The unity of the impression at once disappears and a sensible duality succeeds. So important is the adaptational reference of consciousness that we largely discriminate or overlook its elements acording to the demand for such analysis as a condition of effective response.

The psychological service rendered by physiology is analogous to that of anatomy; the two differ only in the specific character of their correlations. For each variety of functional activity a structural basis is to be predicated, whether its existence has been demonstrated or not. Of these two physical systems physiology bears the more direct and intimate relation to psychology. The processes of consciousness are correlated with structure only through the mediation of functional activities whose form depends upon that permanent structural basis which anatomy reveals. The features of the spinal cord, for instance, are made psychologically significant solely by their determination of physiological processes. The same is true of sense organs, of the cerebral structures and of the supporting and muscular tissues which condition the subject's reaction upon the world.

The conception of these relations between mind and body must be carried to the utmost intimacy and detail. The fluctuations in any individual's view of life, as well as his general temperamental attitudes, are related to the systemic condition of the organism and its changes. Every man is more or less of an optimist after a good dinner, and the discerning landlord knows that an occasional banquet helps to keep the tenants satisfied. "The well fed man is disposed for the play," as one might paraphrase the cry, *panem et circenses!* The constant stomachic irritation of the dyspeptic patient is so closely related to the sourness of his fretful mind that we conceive the disease symbolically, and speak of *dyspeptic* views of life. The term "jaundiced," primarily descriptive of physical disease, is likewise made to do service in the characterization of mental attitudes.

The physiology of the ancients rather than their psychology needed rectifying when they divided the temperaments of men into classes according to the prevalent bodily humor, and called one sanguine, another choleric, a third phlegmatic, and a fourth melancholy. The influence of drugs is but a special instance in a larger class of relations. The subjective sense of elation and self-confidence which successful accomplishment brings may be simulated by the use of alcohol; and physical disease may give rise to the same spiritual depression produced in other cases by failure in one's enterprises. Hashish and opium are keys to evanescent paradisaical states and man has immemorially sought anodynes for his pain, or a vicarious experience of perfection, through the use of drugs.

But these exceptional mental states, which we thus refer to functional disturbance or permanent organic modification, are less important to note than the uniform association of physical conditions with the normal phenomena of consciousness. Seeing involves changes in the pigment cells of the retina as well as excitation of the optical tract and stimulation of nerve-masses in the occiptal lobe of the brain. Hearing is dependent upon certain adjustments of the ear-drum and bones of the middle ear as well as stimulation of the auditory fibres and of nervous tracts and ganglia analogous to those connected with the rise of visual sensation. The mouth may be wiped of taste as the lips of moisture by drying its interior surfaces, or by severing the nerve which connects the taste-bulbs with the brain. Every sensation thus depends in a threefold way upon changes in the physical coefficient,—stimulation of the sense organ by an external agent, propagation of a wave of molecular reconstruction along the conducting nerve, and functional activity in the cerebral cortex.

From the side of development, equally with that of function, the fundamental nature of this

correlation appears. The materials of mental growth are to be found in the manifold stimulation pouring in upon the organism from the external world. If this system of continuous impressions be excluded the very possibility of development is withdrawn. It is only in its later derivative forms, if at all, that activity can go on in independence of external stimulation. Both historically and teleologically the thinker who seeks to shut out the distracting system of sensory impressions and to carry on his reflection in a condition of abstraction from his surroundings, is still in connection with that world. His thought is a reconstructive process concerned either with the facilitation of reaction or with the clarification of its grounds. For the materials with which he thus deals the thinker is indebted throughout to the impressions which the external world affords. If arrested at any stage, the loss of such stimulation prevents all further enrichment of the mind's inner content and limits the organization of individual experience with which it is continuously occupied. If excluded from its beginning the process of mental development will lack its very point of departure and systematic ground. To repress the system of reactions which normally follows upon stimulation is no less disastrous. The well-born child would be made an imbecile as effectively by the prevention of all free movements as by the exclusion of sensory stimulation.

The qualitative content of consciousness under any specific set of conditions is determined both by the nature of the stimulus which acts upon the organ of sense and by the character of the structures in which the stimulus sets up activity. As the latter are twofold in type it follows that the mental content is contingent upon three factors,—the character of the presented stimuli, the structure of the sense organs, and specialization of the central nervous cells in which functioning is aroused.

Sensory consciousness reflects, in general, the series of differences which obtains within the external world. One form of stimulation arouses a sensation of light, another of sound; one gives rise to a sensation of color, another to that of brightness; one provokes the sensation of green, another that of red; and so on. But the system of presented stimuli affords only the theoretical limits of possible sensation; it does not determine its actual content in any individual case. The specific quality of consciousness depends also upon the second of these factors,—the system of sensory structures which the organism possesses. Each special sense is conditioned upon the differentiation of a part of the body surface in such a way as to make it responsive to a limited class of stimuli alone. The range of physiological responses which the individual makes will thus depend upon the number and character of the differentiated mechanisms which he possesses.

In its relation to the general system of agencies which the external world comprises, the group of sense organs thus represents a selective limitation in the range of stimuli, and is correlated with the general character of the organism and its system of habits. It is the distribution of these structures which determines the actual qualitative content of consciousness for each individual. Light and the existence of an eye, sound and the possession of an ear, are correlated facts. As many such classes of sensational qualities exist for the individual as he possesses mechanisms of sense. Within this field a second form of selective limitation is also to be noted, in the existence of characteristic thresholds of effective stimulation for each sense, which in a new way determines the range of differences of which the individual can become aware.

In the third place, the constitution of the central nervous system and its formal reaction upon stimuli must also be taken into consideration. This form is, of course not independent of the character of the stimulus with which it is habitually associated. The central nervous mass may be described as a system of projection points for the whole sensory and motor surfaces of the body. It does not possess an independent field of activity and therefore contributes no new simple quality to consciousness. Its various local responses are indeed so constitutionally reflective of the stimulus that no qualitative modification follows even when the stimuli which have aroused functional activity are exceptional and abnormal. The habitual condition on which visual sensation depends is a photo-chemical process in the retina of the eye, set up by the action of light which falls upon it; but the pressure of the finger-tip upon the side of the eyeball, over the retina, produces those concentric zones of faint color which we call phosphenes; a current of electricity transmitted through the eyeball is accompanied by flashes of light; a blow upon the occiput causes one to see stars; an epileptic discharge within the lobe of the brain is marked by sensations of light; the stimulation of the same centres through the action of drugs has a like effect, and excitation through associated cerebral centres produces visual hallucination.

The response of the centres is thus characteristic and persistent. By a multitude of different stimuli a qualitatively single sensation is aroused. Light stimulation, mechanical pressure, electric discharge, direct concussion, circulatory irritation and associational excitation are responded to in a unique and uniform way, by the rise in consciousness of a visual quality. In the same way do the impinging of air waves upon the ear, the reception of a blow upon the temporal lobe, the administering of a dose of quinine, the acceleration of aural circulation, lesions within the brain, or cross-excitation of the auditory centres provoke a series of responses having the common qualitative characteristic of auditory sensation. The law extends throughout the range of central reaction to stimuli; the quality of sensory consciousness cannot be determined without taking into ac-

count the specific energies of the central nervous system.

The physical correlate of consciousness may, of course, be conceived in more extended or more limited terms. In its narrowest application it excludes not only the whole system of changes in the world external to the body, but also that part of the process of physiological change lying outside of the central nervous system. Functional activity in the cerebral cortex is the immediate physical correlate of consciousness,—in other words, central neural excitement is the proximal event in the succession of changes with which consciousness is temporarily associated. No earlier phase in that continuous process is marked by this unique accompaniment, whether it lie beyond the body or within it, in mechanical apparatus or conducting nerve, in spinal column or inferior masses of the encephalon. Nor is any stage subsequent to the cortical excitation so characterized. Consciousness arises at this sole point in the succession of events.

Further, it arises in connection with cortical activity whatever be the origin or consequence of such excitation. The stimulus which normally conditions the activity in question may be lacking, and thus the relation of the content of consciousness to the external world be distorted; the reaction in which mind customarily finds its expression may fail, and the relation of the will to the world be misconstrued; but if the central nervous activity be once set up a specific consciousness appears whether it be a well-grounded perception or a sensory hallucination, an actual adaptive response or a delusion of the will.

Disturbances of the central and of the peripheral processes thus affect consciousness in characteristically different ways. The destruction of sight through injury to the eye arrests the power to add to the store of visual impressions but leaves the product of past experience unaffected. Milton's poetry is a procession of visual imagery for which, in "Paradise Lost," he was compelled to draw wholly upon memory. The loss of control over any set of muscles limits the individual's future reaction upon the world, but in no way changes his representation of its character or interferes with his imaginative treatment of its materials. If, on the other hand, the blind subject has suffered from a lesion in the occipital lobe of the brain, visual perception thereafter will indeed be impossible; but in addition the whole substance of visual imagery will disappear from the individual's mental world. Likewise if the interference with voluntary movement be due not to an external obstacle, such as muscular fatigue or the loss of a limb, but to lesion in the motor areas of the cerebrum, there follows not only a cessation of the reaction itself but the very capacity to imagine the character of the act in question vanishes along with it.

The study of the physical organism does not end with the description of its reactions and functional processes,—of muscular contraction and glandular secretion, of transpiration and osmosis, etc.; it extends also to a minute analysis of the qualitative constituents of the body and their syntheses. Chemistry, in its pursuit of this inquiry, is related to both anatomy and physiology in the service it renders to psychology. The chemical compounds of the body are in part the basis of structure and in part the product of function. The material condition of any physiological activity includes not only structure and its specialized cell-units, but also the chemical nature of the substances which compose them. The constitution of nerve-matter, no less really than qualitative and intensive aspects of stimulation, or medullary sheath and synapse, conditions the form of the molecular wave which is propagated along the fibre, as well as the character of the so-called explosion within the ganglion. The phenomena of grey light and color vision may be correlated with the distribution of the rods and cones, but it is immediately dependent upon photo-chemical processes occurring in the visual purple.

Physiological action at large is a process of chemical decomposition and recomposition. Nervous and muscular propagation depend upon waves of reconstitution which vary correlatively with the tissues in which they take place. In terms of these two constituents, structural form and chemical reaction, the whole system of organic functions is finally reducible. In connection with every form of mental change, therefore, the chemistry of metabolism must be considered by the psycho-physiologist.

Besides a study of the chemical reconstruction itself this includes an analysis both of the substances upon whose transformation function depends, and of those which result from such activity,—that is, of the products of assimilation and dissimilation alike. Many facts have already been established in this field. The sense of bodily well-being is conditioned upon the nutritional state of the body and free elimination of waste products. The feeling of fatigue results from the presence of specific chemical poisons due to muscular and nervous activity. The presence of drugs in the blood is indicated by characteristic changes either in the special content of consciousness or in its general activity and relations. A dose of santonin colors the visual field yellow, a pinch of quinine sets the ears ringing to an internal rhythm. A glass of alcohol accelerates and disorganizes mental activity, while it deepens the sense of reality; a pellet of opium or hashish exalts and distorts consciousness to a still greater degree; a whiff of ether abolishes it altogether. Qualitative changes in the blood supply, as well as lesions of the central nervous system, condition various forms of more permanent psychical disturbance.

In a similar way the system of mental activities is correlated with specific forms of chemical disintegration. Thinking is accompanied by the transformation of nervous substances in the

cortex, which liberates heat and produces chemical compounds of lower grade. Changes in the composition of perspiration and saliva accompany the occurrence of certain forms of emotional excitement, such as the anticipation of food or an outburst of rage.

Thus with every form of conscious change there is to be assumed not only anatomical and physiological conditions, but also a chemical product as well as a chemical basis. If the establishment of the relations which exist between organic structure and the form of consciousness be part of the psychologist's work; if it be also part of that work to determine the physiological function which is correlated with each phase of the changing consciousness, it is no less his task to work out the chemical reconstructions which accompany its modifications.

With this group of sciences must be connected still another, which differs from them only in representing a more complex phase of psycho-physical correlation. This is the science of embryology,—or rather of physical growth and development at large, including post-natal as well as embryonic and foetal periods. As each phase of mental activity at any moment is referable to an underlying physiological process and the chemical changes upon which it depends, so is the succession of functions and stages which ontogenetic evolution presents to be correlated with waves of reconstruction taking place in the physical organism in the course of its individual history. The changing mind is the expression of a changing body and cannot be made intelligible apart from the latter system of phenomena.

In conceiving this whole series of correlations it is the mental system which is commonly made the starting-point but the form of statement is of secondary importance if the fact of correlation itself, and not its implications, be in question. Expressed in this alternative way we say that the character and activities of the mind are embodied in the features and reactions of the organism. For these bodily signs and conditions we look primarily to posture, action, and other expressive changes. Diagnosis is thus made on the basis of functional, not structural, characteristics.

The conception of systematic co-ordination between mind and body is carried a step farther when permanent structural features are added to reactions and functions as part of the physical index of mind; yet this is constantly done in greater or less degree. Though to all persons the ugliness of Socrates may not present the paradox it offered to the Greeks, it is still a general human judgment that character is not only expressed in special acts, but also correlated with particular anatomical features. Either an ultimate constitutional parallel exists, or the habitual activities in which mental traits are reflected mould the features, and the disposition of the body as a whole, to sympathetic forms which we unhesitatingly interpret in subjective terms.

The stamp which can be imposed upon the body in the course of a single life is necessarily limited to its minor and more easily modifiable features. Certain professional habits and modes of life, certain occupations which subject those who follow them to deforming or poisoning agents, have well defined diatheses which are interpreted without hesitation. But the obvious elements of these changes are practically confined to the muscular and fatty tissues, and to dermal alterations due to interferences with the digestive and eliminative processes. The larger anatomical features of the body remain practically unaffected by the fortunes of the individual and reappear unchanged in his offspring.

This whole group of phenomena, however, may be regarded from another standpoint, namely in its bearing upon the problem of mental development in the species. The body cannot be conceived as an organ of mind in any sense which separates the destinies of the two and makes of the mind an independent entity, as the user of an instrument is independent, in nature and origin, of the implement he employs. The individual mind is not given as a determinate reality which is later brought into connection with the body as a medium of expression. Mind has logical priority only from the subjective point of view; if organic life be taken as the starting-point of reflection, the current formulas may be reversed and the mind called the instrument of the body, for the term then stands for the system of biological functions regarded subjectively.

The character and range of experience are essentially related to the sensory and reactive mechanisms of the physical organism. The body is the mind's limiting and determining condition as well as its agent. Both the quality of its constituents and the level of its combinations change with every variation in the type of structure which supports it. The developmental histories of mind and body have followed parallel courses, the incidents of which are interlocked at every stage.

Not only must the system of mental activities be viewed in its relation to the constitution of the body and its reactions; but the configuration and habits of the psycho-physical type as a whole must be conceived in its ecological relations with the surrounding world and its forces. The primary relation of the organism to its environment is that of a food-consumer to its source of supply. Appropriative reaction is thus the basal activity with which all others are connected. Such reaction is valuable only in so far as it is specific and intelligent, in the sense of being discriminative and selective. It must, therefore, be under the guidance of sense. Discriminative sensibility makes possible the series of reactions upon which life depends. The number and quality of the objects to which reaction is made, as well as the range and character of the movements themselves, depend upon the nature and variety of the sense organs possessed by

the organism. Sensation and movement are universally combined in a unitary process which we describe as discriminative reaction.

With the features of organic development are thus correlated both the type of apprehension and the form which reaction takes. The reflection of the world in consciousness is conditioned by the differentiation of the sensory surfaces, the perceptual use of which requires also the development of motor control. The evolution of intelligent reaction upon the world, therefore depends as essentially upon the elaboration of peripheral mechanisms as upon the development of central processes. Through the former are given the diverse materials of experience which it is the function of reflection to coördinate and transform into a rational system.

The rich and varied stimulation which is received from the external world arouses the mind to those inner activities upon which all mental development is conditioned. The necessity of a full and free access to the materials of experience is a fundamental concept of educational method. The system of senses conditions the variety of impressions, and the arrangement of skeletal and muscular structures determines the form of the reaction. Abundant stimulation and full organic development are thus the logical ground not only of practical efficiency but indirectly of all theoretical reflection upon experience as well.

The process of perception is elaborated in dependence upon a system of motor reactions, the character of which determines the form and adequacy of one's intuition of the world. Pure sensory apprehension does not exist, since that interpretation of sensation through which the objective world is represented in consciousness can proceed only on the basis of adaptive reactions to stimulation, by which the relations of sensory complexes are established through actual exploration, until the field of perception becomes a system of intelligible symbols which is instantly and correctly apprehended.

The perceptual world presented in consciousness at any moment is thus a complex product which can have arisen only from manifold and repeated experiences, in which the sensory content has been subjected to experimental variation and associated with specific forms of self-activity and its objective limitations. The more variously we have reacted upon the physical world the more full of meaning is the system of sensory stimulations which it affords and the more extensive our discrimination of its characteristics and relations. To a being sensorially perfect, but incapable of reaction upon its environment, the world in which we live must remain a pure phantasmagory of shifting sensations, a dream of impalpable subjective visions.

The features of the world which the senses of a given animal reveal to it are, therefore, intimately dependent upon the character of its exploring and manipulative organs as well as the range of its special sensation. The mechanical limits placed upon its reactions are at the same time conditions which determine the form and extent of its interpretation of sensory impressions. Without those surface differentiations which permit distinct physiological reactions to a multitude of modifications in the stimuli, no differential response would of course be possible, and discrimination would lack its fundamental significance. But were the development of sensory modifications never so perfect, it would still be useless as a medium of perception so long as organic adjustment through the control of muscular functions remained in abeyance.

In view of the system of relations in which it thus stands, it must be said that to know the individual mind is to be acquainted with the constitution and hereditary aptitudes of the body and the whole system of environmental conditions under which it has taken shape. Air and soil, climate and scenery, stimuli and foods enter into the making of every individual; and no less do the influence of fauna and flora, of domestic and economic conditions, of the available materials which are worked up in the service of life and the forms in which they are cast.

With the metaphysical problems to which psycho-physical phenomena give rise psychology has no concern. Whether reality be construed in terms of consciousness, as reason or will,—bodily effects being regarded as its phenomenal expression; or be conceived in terms of matter and force,—the phenomena of consciousness becoming functional products of their organization; or be formulated in terms of both consciousness and material existence, the temporal phases of which present parallel changes, the empirical correlation of the two series remains unaffected. The association of these processes is a given fact, and with that alone the psychologist has to do. It is one and the same system of experiences which is interpreted through these alternative concepts. The metaphysical formulation is a purely reflective comment upon the order of reality which remains unmodified by the form which this interpretation takes.

In so far as psychology has to deal with the question of the relation between mind and body it is solely the form of their empirical correlation which concerns it, and not their existence as metaphysical reals. For reflection in certain of its aspects the association of consciousness with the process of neural activity may present a stupendous mystery and the chasm which separates mind and brain remain unbridgeable; but for the psychologist the recognition of their association in our experience must simply be postulated as the necessary point of departure. To raise the question how physical energy can be transmuted into consciousness, or a neural change condition mental activity, is to pass over from the field of science into that of metaphysics. Science is nowhere called upon to discuss the possibility of interaction, such as the transfer of motion or psycho-physical interchange, but is concerned solely with a

correlation of the contents of experience in terms of quantitative and temporal units.

For psychology the question is always one of fact concerning either the immediate observation of temporal associations between the two series of events, or the theoretical extension of their field on an inductive basis. The reality of the psycho-physical relation as a datum, the specific nature of the correlations it presents, and the scientific limitation and distribution, complete the series of aspects which this problem presents to the psychologist. The first he touches only in so far as it is made a methodological assumption; the correlation is given in experience, not speculatively assumed. It is not a concept to be validated as an explanatory formula but a datum of intuition. In the sense in which the existence of consciousness and the external world must be assumed in order that the question of psychology may be raised at all, just so must their correlation in individual experience be posited as a fact if the attack upon individual psychological problems is to be made possible.

It is, therefore, with the second of these three aspects that the psychologist's work actually begins. The specific psycho-physical correlations are not assumed. They are matters to be experimentally demonstrated, and the working out of their features in detail constitutes the task of experimental psychology in this field.

The question of distribution is, of course, determined by the existence of the psychical, not of the physical term. To speculate concerning the correlation of consciousness with all physical phenomena is to raise a metaphysical question, not one of science. It is the existence of consciousness which affords the subject matter of psychology; its distribution therefore establishes the limits of the field within which psychological concepts shall be applied.

The range of interest in organic processes and living change at large is thus not identical in the cases of psychologist and physiologist respectively. The distinction touches both the extent of the two fields and the incidence of attention within any system of phenomena. For the physiologist it is the whole series of changes presented by living substances which engages attention. Wherever these phenomena are to be found the problem of establishing their form and connections is raised, and with its determination his work is completed. In his sight the existence of a correlative consciousness in any given case is a mere incident, a concomitant which appears in connection with certain of the processes he studies; but which is not—even in such cases—an essential aspect of the phenomenon. On the contrary, a reference by the physiologist to this mental concomitant may in strictness be said to indicate a defect either of method or of data.

The states of consciousness are not stages or elements in the succession of changes which the physiologist describes. Neither as products nor as conditions should they be introduced into the physiological series. In practical relations a representation in terms of consciousness often supplements the statement of physical series of changes, as when a physician urges the value of confidence and mental serenity in his patient. In physiology itself, when the obscurity of certain phases in any process makes a purely physical statement impracticable, the situation is treated in terms of the mental correlative which characterizes it. But in its strict sense the procedure of physiological science should be restricted to a statement in terms of the qualitative, temporal and geographical changes of material substances and forms alone.

On the other hand, it should be clearly perceived that in whatever way it touches this field the interest of psychology is still ultimately the form of the mental reaction alone. With the organic series of changes as such he is never concerned. The physiological system is merely a medium through which the psychologist views his own proper objects.

That a student, walking close to the boundary of his science, should be tempted to step over into the neighboring field is natural. The psychologist may for a time leave his inquiry to study a purely physiological problem which has been raised in the course of his investigation; and the physiologist may similarly be led to formulate strictly psychological problems as a corollary of his own researches; but in each case the original undertaking is replaced by a new and independent aim which necessitates a reconstruction of the whole attitude and arrangement of materials. As in his use of physical agencies to produce sensory stimulation, the psychologist is not studying a problem in physics, so in his approach to a psychological problem through the observation of organic changes he is not studying a problem of physiology.

Neither psychologists nor physiologists keep this distinction uniformly clear. At the same time such crossing of the line is not to be wholly deprecated. The two studies are mutually assistive and the technical preparation which either has received in the study of his own problems may be the best possible qualification for approaching a special problem in the adjacent field, when he has once clearly formulated it. Historically, the debt has been large on both sides. Introspective study of the psychological system of phenomena has often been the guide in formulating general schemes of organic or functional relations, to be tested by physiological experimentation; and the determination of organic structures and chemical changes has directed and modified the psychologist's conception of the relations of consciousness. We may, therefore, conclude that the more exact and comprehensive knowledge in either field becomes the greater will be its contribution to progress in the other science.

THE DIGESTIVITY OF THE HUMAN GASTRIC JUICE COMPARED TO THE DIGESTIVITY OF VARIOUS REMEDIES RECOMMENDED IN DISORDERS OF THE STOMACH.

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"THE stomach is not a test tube," has been said frequently as a warning to the fallacy of accepting in toto the finding of experiments as representing what actually takes place in the human stomach. It is also fair to state that these tests were not performed to prove any preconceived opinions, in fact I was somewhat surprised at the results. Further, adopting the caution of Mr. Mill, "To discriminate accurately between what we really do observe and what we only infer from the facts observed," I will consider first the experiments and the results, and then later some inferences that seem fair, probable and prominent.

After finishing a gastric analysis and finding the secretion normal I decided to compare its digestivity, as determined by its action on discs of coagulated egg-albumin, with the digestivity of some of the pharmaceutical preparations. The gastric secretions used throughout these experiments were obtained by giving the patients the routine test meal of bread and tea, waiting one hour, removing the gastric contents by the tube; the contents were then filtered, and the filtrate used in the tests.

It will be helpful to describe this first set of tests, although they were crudely performed; the results caused the later observations. Seven test tubes were used; in each were placed three discs of egg albumin and, with the exception of the last tube, a fl. ℥ ss of the solution to be tested. The tubes with a thermometer were placed in a water bath and heated. I was unable to observe this series accurately, the tubes were not agitated, the temperature was maintained at about 130° F. for about four hours. In Table No. 1 will be found the contents of each tube, with the observations made at the end of four hours.

TABLE No. 1. TEST SERIES No. 1.

Tube No.	Contents.	Results.
I	Gastric juice. Patient A. S. Total acidity 72 or .26% Free H Cl 52 or .19%	Discs: approximately three-fourths digested. The remainder was very soft and transparent.
II	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Discs: no effect, firmer. Flocculent precipitate.
III	Ess Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Discs: no effect. firmer. Flocculent precipitate.
IV	Elixir Lactopeptin. (N. Y. P. Co.) Alcohol 19% by vol.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
V	Elix. Digest. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
VI	Pepsin (Wyeth) gr. xxx. Ac. hydrochl. dil. m. lxxx. Aq. distill. q. s. ad. fl. ℥ i.	Disc: slight digestive effect. Flocculent precipitate.
VII	Ac. hydrochlor. (C. P.) gtt. v. Ess. Pepsin (Fairchild) fl. ℥ ii.	Discs: surfaces slightly transparent, edges still preserved. Flocculent precipitate.

On observing these tubes I thought that the flocculent precipitates were caused by the digestion of the albumin, but on shaking the tubes the discs were observed as noted. I suspected, and the later tests proved, that these precipitates were caused by the heating.

The results were brought to the attention of a local druggist; he repeated some of the experiments, following generally the directions as given in the U. S. P. (1900) for the assay of pepsin. The tubes were kept in the water bath at 125° F. for two and a half hours, agitated every ten minutes. In these directions, it is stated that the egg should be immersed in boiling water for fifteen minutes, the albumin separated from the yolk and finely divided by passing it through a No. 40 sieve. I pointed out that if this were done, it would be impossible to decide the effect on the albumin on account of the precipitation caused by the heating, therefore discs were used. In each tube there were a fl. ℥ ss of the solution and three albumin discs. The preparations tested and the results are appended

TABLE No. 2. TEST SERIES No. 2.

Tube No.	Contents.	Results.
I	Elix. Diges. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
	Control.*	Precipitate.
II	Elix. Lactopeptin (N. Y. P. Co.). Alcohol 19% by vol.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
	Control.	Precipitate.

* Controls, contained no discs, the tubes were not agitated and were kept in the water bath for one hour at 125° F. The tubes in this and the subsequent series were corked.

The controls proved conclusively that the precipitates are caused by heating.

Tube No.	Contents.	Results.
III	Ess. Pepsin (Fairchild).	Discs: no effect, firmer.
	Alcohol 18.5% by vol.	Precipitate.
	Control.	Precipitate.
IV	Ess. Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Discs: no effect, firmer. Precipitate.
	Control.	Precipitate.
V	Pepsin (Wyeth) gr. xv. Ac. hydrochlor. dil. m. xl. Aq. distill. q. s. ad. fl. ℥ ss.	Discs: slight effect, softer. Precipitate.
	Control.	Precipitate.

I decided to test other preparations. Dr. Louis R. Wiley assisted me in Test Series No. 3. In each tube were placed a fl. ℥ ss of the preparation and the albumin discs. All the tubes were kept in the water bath at 125° F. for three hours, and inverted twice every ten minutes.

TABLE No. 3. TEST SERIES No. 3.

Tube No.	Contents.	Results.
I	Liquid Pancreopepsin (Warner). Alcohol 10% by vol.	Discs: no effect, firmer. No precipitate.
II	Control.	No precipitate.
III	Elixir Peptenzyme (Reed and Carnrick). Alcohol 16.14% by vol.	Discs: no effect, firmer. Precipitate.
IV	Control.	Precipitate.
V	Ess. Caroid. (Mead, Johnson & Co.). Alcohol 12% by vol.	Discs: no effect, though softer. Precipitate.
VI	Control.	Precipitate.
VII	Elix. Lactated Pepsin (P. D. Co.). Alcohol 15% by vol.	Discs: no effect, firmer, stained carmine. Precipitate.
VIII	Control.	Precipitate.

On reflection, I realized that if any comparisons were to be made between the digestivity of the gastric juice and of these preparations, the conditions present in the human stomach should be imitated as far as possible. I found in Beaumont's classical work, that the range of the temperature of the stomach under all conditions was between 98° F. and 103° F. Howell states that the optimum temperature of pepsin ranges between 98.6° F. and 104° F., and that exposure to 176° F. results in the inactivation of the pepsin. In my future experiments I therefore decided to keep the water bath between 100° F. and 104° F. These remedies act in the human stomach as does the gastric juice, therefore when they are compared in tests outside of the body, it should be done at the temperature of the human stomach (98° F-103° F.) and not at 125° F. To imitate the peristalsis, the tubes were inverted twice every ten minutes. The coagulated egg-albumin was prepared as follows: the egg was placed in boiling water for five minutes and then transferred to cold water.

In considering the following experiments it must be remembered that though the stomach is not a test tube, it is also true that the gastric juice is not accustomed to working in a test tube; and be it also remembered that these remedies, with one exception, are manufactured products—we may say made in test tubes—so that the element of artificiality could be considered to favor the remedies. Be that as it may, the gastric juice and the remedies were under the same normal conditions, in similar amounts (fl. ℥ ss), and the amount of albumin was always the same (10 grains). Dr. H. C. Wood, Jr., suggested to Dr. Wiley that a weighed amount of albumin should be used, and the weight noted at the end of the test. The albumin was cut into small blocks; it required two or three blocks to weigh 10 grains. This shape gives the observer a better opportunity to detect any digestive effect. It is more probable that the stomach receives an egg in this form than if passed through a No. 40 sieve. Beaumont also states that soft-boiled eggs are digested in the stomach in three hours, whereas it took about six and a half hours for the gastric juice to digest soft boiled eggs in a vial kept at 100° F. with frequent agitation. Therefore the conditions of the later tests are as follows: the water bath was kept between 100° F. and 104° F. for six hours, each tube contained a fl. ℥ ss of the solution with ten grains of the coagulated egg albumin, the tubes were inverted twice every ten minutes. The following tests were then performed:—

TABLE No. 4. TEST SERIES No. 4.

Tube No.	Contents.	Results.
I	Gastric juice, patient M. K. Total acidity 62 or .21%. Free H Cl 34 or .12%	Blocks: entirely dissolved. Slightly cloudy.
II	Artificial gastric juice Ac. hydrochlor. .2%. Pepsin (Armour) .3%. Aq. distill. q. s.	Blocks: slightly rounded, very slightly firmer. 8½ grains.
III	Elixir Lactated Pepsin (P. D. Co.). Alcohol 15% by vol.	Blocks: no effect, edges unchanged, firmer, stained carmine. Slightly cloudy. 7½ gr.
IV	Same + .2% H Cl.	Blocks: edges slightly rounded, firmer, stained carmine. Cloudy. 9 grains.

Tube No.	Contents.	Results.
V	Liquid Pancreopepsin (Warner). Alcohol 10% by vol.	Blocks: no effect, edges unchanged, firmer. Clear. 9½ grains.
VI	Same + .2% H Cl.	Blocks: very slight if any effect, edges unchanged, firmer. Clear. 9½ grains.
VII	Ess. of Caroid (Mead, Johnson & Co.). Alcohol 12% by vol.	Blocks: edges slightly rounded, very slightly if any firmer. Cloudy. 7 grs.
VIII	Same + .2% H Cl. Slight precipitate before test.	Blocks: edges sharp, slightly firmer. Cloudy. 8 grains.
IX	Elix. Digest. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Blocks: no effect, edges sharp, firmer, stained carmine. Cloudy. 7 grains.
X	Same + .2% H Cl.	Blocks: edges slightly rounded, firmer, stained carmine, surfaces smeary and sticky. Cloudy. 8½ grs.
XI	Elixir Peptenzyme (Reed & Carnrick). Alcohol 16.14% by vol.	Blocks: no effect, edges sharp, firmer. Cloudy. 7 grs.
XII	Same + .2% H Cl.	Blocks: no effect, firmer, edges unchanged. Cloudy. 9½ grains.
XIII	Ess. Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Blocks: edges very slightly rounded, surfaces slightly sticky, firmer. Cloudy. 6¾ grs.
XIV	Same + .2% H Cl.	Blocks: edges rounded more so than in No. XIII., surfaces more smeary than No. XIII. firmer not as marked as No. XIII. Cloudy. 6½ grains.
XV	Elix. Lactopeptin (N. Y. P. Co.). Alcohol 19% by vol.	Blocks: edges very slightly rounded, surfaces slightly smeary, firmer, stained carmine. Cloudy. 7½ grs.
XVI	Same + .2% H Cl.	Blocks: edges very slightly rounded, surfaces slightly sticky, firmer, stained carmine. Cloudy. 9½ grs.
XVII	Ess. Pepsin (Lilly). Alcohol 17% by vol.	Blocks: edges slightly rounded, surfaces sticky, firmer. Cloudy. 7½ grains.
XVIII	Ess. Pepsin (new formula). Pepsin. Armour. Rennin. Wyeth. Alcohol 20% by vol.	Blocks: edges slightly rounded, surfaces sticky, firmer. Cloudy. 7½ grains.
XIX	Same + .2% H Cl.	Blocks: edges rounded, surfaces sticky, slightly firmer. Cloudy. 7 grains.
XX	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Blocks: edges very slightly rounded, surfaces not sticky, firmer. Cloudy. 7 grains.
XXI	Same + .2% H Cl.	Blocks: edges slightly more rounded than No. XX, surfaces slightly sticky, firmer. Cloudy. 7 grains.
XXII	Ess. Pepsin (R. S. & Co.). Pepsin. Armour. Contains .12% H Cl. Alcohol 18% by vol.	Blocks: edges fairly rounded, surfaces barley sticky, firmer. Cloudy. 7 grains.
XXIII	Ess. Pepsin (R. S. & Co.). % H Cl. increased to .2%. Pepsin. Armour. Alcohol 18% by vol.	Blocks: edges slightly rounded, more so than No. XXII, surfaces sticky, firmer but not as marked as No. XXII. Cloudy. 7½ grains.

In Test Series No. 4 I was assisted by W. W. Nofer, P.D.

In this series it was suggested that the addition of .2% HCl would increase the digestivity of the various preparations. This addition was made, as indicated in the series; it will be noticed that the addition probably was futile. Where there was any marked change, the blocks were heavier.

In considering Test Series No. 4 it is noticeable, that though the albumin does not show any great digestive effect, they all show some loss of weight. To demonstrate if the alcohol present in the various preparations was responsible, Test Series No. 5 was conducted. The arrangements were identical with Test Series No. 4.

TABLE No. 5. TEST SERIES No. 5.

Tube No.	Contents.	Results.
I	Gastric juice. Patient H. W. V. Total acidity 54 or .19%. Free H Cl. 50 or .18%.	Blocks: digested in 4 hrs. 40 min.

Tube No.	Contents.	Results.
II	Gastric juice fl. 3 iliss. Alcohol fl. 3 ss.	Blocks: edges rounded and softened showing decided digestive effect, softer. On account of the softness of the albumin, all the pieces could not be weighed, the loss however, being only ½ or ¾ grains. Cloudy. 6¼ grs.
III	Gastric juice fl. 3 iii. Alcohol fl. 3 i.	Blocks: surfaces sticky, edges rounded showing some digestive effect, slightly firmer. Cloudy. 8¾ grs.
IV	Distilled water.	Blocks: no effect, swollen appearance, some small pieces of albumin broken off by inverting, the loss about ½ grain. Clear. 16 grains.
V	Distilled water fl. 3 iliss. Alcohol fl. 3 ss.	Blocks: swollen appearance, no effect. Clear. 16¾ grs.
VI	Distilled water fl. 3 iii. Alcohol fl. 3 i.	Blocks: no effect, swollen. Clear. 16 grains.
VII	Pepsin (scale) Ray Chem. Co. .3% sol. distilled water.	Blocks; no effect, edges unchanged, slightly firmer. Cloudy. 8 or 9 grains. Record not definite.
VIII	.3% pepsin sol. fl. 3 iliss. (Ray Chem. Co.). Alcohol fl 3 ss.	Blocks: no effect, edges unchanged, firmer. Cloudy. 8¾ grains.
IX	.3% pepsin sol. fl. 3 iii. (Ray Chem. Co.). Alcohol fl. 3 i.	Blocks: no effect, edges unchanged, firmer. Cloudy. 9½ grains.
X	Pepsin (scale) (Ray Chem. Co.) gr. xv. Distilled water fl. ʒ ss.	Blocks: edges rounded, surfaces moderately sticky, may be slightly firmer. Cloudy. 4¼ grs.
XI	Pepsin (scale) gr. xiii ⅓. (Ray Chem. Co.). Distilled water fl. 3 iliss. Alcohol fl. 3 ss.	Blocks: surfaces sticky, edges rounded, slightly firmer. Cloudy. 5¼ grains.
XII	Pepsin (scale) gr. xi ¼. (Ray Chem. Co.) Distilled water fl. 3 iii. Alcohol fl. 3 i.	Blocks: edges somewhat rounded, surfaces slightly sticky, firmer. Cloudy. 6½ grs.
XIII	Hepptine. Lab. of Applied Physiology.	Blocks: no effect, edges unchanged, surfaces not sticky, firmer. Cloudy. 7¾ grs.

From Series No. 5 we note that alcohol when added to distilled water does not interfere with the absorption of water by the coagulated egg-albumin, nor cause any loss of weight, Tubes No. IV, V and VI.

It was suggested that the pharmaceutical preparations would have displayed greater proteolytic power if they had been diluted. We see by Test Series No. 4 and No. 5 that the various preparations caused a loss of weight without the blocks showing any gross change indicative of digestive effect. To demonstrate, if the loss of weight is really due to a digestive action, it would be necessary to test the various solutions at the end of the test for the products of digestion,—for peptones, or it would be easier to inactivate the enzymic content by previously boiling the preparation, then testing it, for if there were any loss of weight of the albumin it would be due to physical or chemical action, and not due to enzymic activity. To study the effect of dilution and of heating, together with some other tests, Test Series No. 6 was performed under the same arrangements as Series No. 4 and 5.

TABLE No. 6. TEST SERIES No. 6.

Tube No.	Contents.	Results.
I	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Blocks: no effect, edges unchanged, surfaces very slightly sticky, firmer. Cloudy. 7 grains.
II	Ess. Pepsin (Fairchild). *Boiled for one minute.* Cloudy, marked flocculent precipitate.	Blocks: no effect, edges unchanged firmer, surfaces no change. Cloudy. 7¼ grs.
III	Ess. Pepsin (Fairchild). 4% aqueous solution.	Blocks: no effect, edges unchanged, surfaces not sticky, no change in consistency, appear slightly puffed. Slightly cloudy. Some small pieces broken off. 11½ grs.
IV	Ess. Pepsin (Fairchild). 4% aqueous solution. *Boiled for one minute.* Slightly cloudy and opalescent.	Blocks: same as No. III. Cloudy. Some small pieces lost. 10¾ grains.
V	.2% H Cl.	Blocks: no effect, edges unchanged, puffed, less opaque, softer. Clear. Some small pieces lost. 16 grains.

VI	Ac. H Cl. Dil. M. xl. Distilled water q. s. fl. ʒ ss.	Blocks: no effect, edges unchanged, soft, slightly puffed, slightly less opaque. Clear. Some small pieces lost. 10½ grains.
VII	Pepsin (scale) gr. xv. (Ray Chem. Co.). Distilled water fl. ʒ ss. Yellow tinge, slightly cloudy.	Blocks: edges rounded, surfaces smeary, same consistency or slightly softer. Cloudy. 3¾ grains.
VIII	Pepsin (scale) gr. xv. (Ray Chem. Co.) .2% H Cl sol. q. s. fl. ʒ ss. Yellow tinge, slightly cloudy.	Blocks: edges rounded, surfaces smeary, same consistency or slightly softer. Cloudy. 2½ grs.

These are the experiments. I believe that they were accurately performed as described, the results carefully noted. They represent what was observed.

Bear in mind the object of these tests, as indicated in the title. It is practically impossible to make these comparisons except as has been done. If we were to introduce into the stomach any of these preparations to observe its activity, how could we separate the action of the gastric juice which would be present and acting? It is not an assay of pepsin; it is to determine the clinical value of these preparations as they are placed in the physician's hands. When these remedies are prescribed the patients do not use them in a manner similar to the method of assaying pepsin (U. S. P.). It may be emphasized that only 10 grains of albumin were used in each fluid half ounce.

What are some of the valid inferences that may be drawn from these results? Undoubtedly the most striking is that normal gastric juice has shown the greatest proteolytic power. Therefore, when there is a deficiency of the gastric juice, we should endeavor to re-establish the production of normal gastric juice, before replacing it by these various remedies. In Test Series No. 5, we see that the gastric juice which had entirely digested the albumin in Tube No. I had its activity retarded by the addition of alcohol, for in Tube No. II, with a fl. ʒ ss alcohol there remained 6¼ grs. of albumin and in Tube No. III, with fl. ʒ i alcohol, there remained 8¾ grs. Although this does not prove that alcohol does not increase the quantity of the gastric juice, it does prove that alcohol *per se* does interfere with digestion. It may be fairly admitted that alcohol by increasing the total quantity of gastric juice by its direct and indirect stimulating effect overcomes the interference that its presence causes. When a well person requires alcohol to complete his digestion, he is probably committing some error in diet. When a patient presents some deficiency of digestion the indications will, in a large proportion of cases, be better met by presenting to the stomach some easily digested food efficiently prepared from fresh products than by stimulating the impaired mucosa to greater effort by the administration of alcohol. I am not one that believes that alcohol has no place in the armamentarium of the physician; in my experience there are some indications that are best met by alcohol. The temperance question and the question of alcohol as a food are not before us. We see by Test Series No. 5 that the albumin under the conditions of the test, probably absorbs water, for the albumin was six grains heavier at the end of the test, Tube No. IV. Hepptine, Series No. 5, Tube No. XIII, described as "the pure gastric juice of living pigs," was kindly furnished by the Laboratories of Applied Physiology. In their literature, it is stated, "The juice does more than merely digest the food found in the stomach into which it is introduced—re-establishes its normal secretion, a function which is not performed by any pepsin or preparation of pepsin". . . "is not intended to act directly upon the food, consequently its therapeutic value cannot be computed by the ordinary test tube method, it not being an artificial digestive." Considering the source of Hepptine, I thought that in these tests it would approach the activity of the gastric juice. It showed practically no digestive effect. I have never used Hepptine and cannot speak of its clinical value.

In Test Series No. 6 we see that ess. pepsin (Fairchild), as far as the final results are concerned, was not affected by boiling, Tube No. II. From this the conclusion seems probable that the loss of weight in Tube No. II is not due to enzymic action but to some undetermined physical or chemical action, for physiologists state that pepsin in solution is inactivated by heating to 176° F., the ess. pepsin (Fairchild) was boiled actively for one full minute. Before the final word is said on this point the test should be repeated, tests should be made to determine the boiling point of ess. pepsin (Fairchild), and also to determine if there are present in the essence any substances which protect the pepsin content from the inactivating effect of the boiling. On account of the presence of the alcohol, it would be well to test an essence of pepsin that had been subjected to a temperature of 212° F. in a closed container. Dilution of ess. pepsin (Fairchild) did not favorably affect it; the boiled specimen here also gave the same result, Tubes No. III and No. IV.

Hydrochloric acid in the proportion of .2% did not affect the absorption of water by the albumin, Tube No. IV, whereas the proportion of 1.6% checked the absorption, for the albumin weighed only a half grain more, Tube No. VI. What boiled and diluted specimens of the other preparations would do, can only be determined by performing the tests. It cannot be inferred in any way that the pepsin used in the prepara-

tion of these various products is inert, perhaps it is inactivated or its activity greatly retarded by the various menstrua. We see that scale pepsin, 15 grs. to a fl. ʒss of distilled water, reduced the albumin to 4¼ grs. (Test Series No. 5, Tube No. x), and to 3¾ grs. (Test Series No. 6, Tube No. vii). Scale pepsin in the proportion of .3% (as found in the gastric juice) did not exert any great effect, the albumin weighed 8 or 9 grs. (Test Series No. 5, Tube No. viii. The reader may make other deductions by studying and comparing the tables. The first three series demonstrated as far as visible results could be judged, that the higher temperature of 125° F. did not cause any greater digestive effect than did the temperature of 100° F. to 104° F.

Many other tests could be performed along these lines, for instance, comparison of the various makes of scale pepsin; comparison of the effect of the same preparation on albumin boiled for different periods of time, as ten, fifteen, twenty or thirty minutes; dried albumin might be used; indicators other than egg albumin could be employed; rocking water-bath might be constructed to represent continuous peristalsis.

A practical inference suggests that when we prescribe pepsin we will probably get better results by ordering scale pepsin dispensed as a tablet, capsule, or in sealed packages, to be freshly dissolved in water and taken about a half hour after meals. If hydrochloric acid is indicated it may be dispensed separately and ordered to be taken well diluted. (All the scale pepsin solutions were freshly made at the time of the tests.)

Undoubtedly pepsin, like other remedies, has suffered from being improperly dispensed and injudiciously used. Pepsin will not lift a fallen stomach; it will not cure the reflex gastric symptoms due to gall-bladder disease, chronic appendicitis, etc. The crux of the whole subject depends upon that fascinating subject of diagnosis. My personal impressions are that pepsin's rôle in therapeutics will be established and enhanced by its exhibition on exact indications dependent on accurate diagnosis.

ON SO-CALLED BINASAL HEMIANOPSIA IN BRAIN TUMOR.

BY WALTER B. LANCASTER, M.D., BOSTON.

THE third paper by Cushing and Walker[1] in their series on distortions of the visual fields in cases of brain tumor is devoted to binasal hemianopsia. The authors detail the histories of a dozen cases with many charts of the fields of vision and reach several conclusions which are of sufficient importance to warrant discussion, the more so as any hypothesis backed by such authoritative writers, the one unsurpassed in the field of cerebral surgery, the other unsurpassed in the field of perimetry, cannot fail to carry great weight.

Quoting from their paper (p. 597):—

"A constriction of the field of vision due to a destruction of fibres more complete from the temporal than from the nasal half of the retina and justifying the designation of nasal hemianopsia has been observed in from 5 to 6% of a series of 500 cases of brain tumor.". . . "It is difficult or impossible to attribute the ultimate binasal blindness to a lesion confined alone to the nerve and retina. Another factor must come into play, which elsewhere in the course of the nerve affects the uncrossed fasciculus from the temporal retina more markedly than the crossed fibres from the nasal retina. We wish to suggest that this may be due to pressure of the dilated [third] ventricle, which forces the exposed nerves or tracts adjoining the chiasm downward and outward against the resistant carotid vessels, which transversely indent the outer aspect of the nerves. In this way the uncrossed fasciculi to the temporal retinae, and the laterally placed macular bundle as well, suffer from a mechanical pressure 'block' in addition to the diffuse anatomical destruction of fibres throughout the nerve in consequence of the contraction of the new tissue formation in the long-standing choked disk."

The two points to be discussed are these: the occurrence of binasal hemianopsia and its explanation.

The question of the occurrence of binasal hemianopsia is a question of definition. It is not easy to give a satisfactory brief definition. The three things to be emphasized are: first, the loss should be limited to corresponding *half fields;* second, the loss should be symmetrically distributed in the two eyes; third, the cause should be a lesion to the visual centres or paths at or posterior to the chiasm, for the fundamental anatomical fact at the foundation of the idea of hemianopsia is the semidecussation of the optic nerves. Cases are not uncommon where we get fields not unlike in extent and distribution those classified as true hemianopsia, but of wholly different origin, for example, in chronic glaucoma and in retinal or choroidal lesions symmetrically disposed in the two eyes. These should not be classed as cases of true hemianopsia. They might be called *pseudo-hemianopsia.* That the authors had some such conception of true hemianopsia as above outlined would appear from a statement which I quote from the first paper in this series[2]:—

"Thus in considering the prevalence of true hemianopsia in a given series of intracranial tumors, one should exclude from the list the subtentorial lesions which are barred from the possibility of *direct implication of the optic tract and radiations.*"

To be sure, most of the cases described in the present paper are subtentorial tumors, but this inconsistency is explained when we recall that the purpose of the paper is to show how such tu-

mors can affect the optic pathway *indirectly* by pressure of the third ventricle.

In the cases under discussion the matter is complicated by the fact that admittedly the chief factor in the loss of vision is the secondary atrophy consecutive to choked disc. The binasal hemianopsia is not claimed to be the only factor. Thus the question is not, are these fields typical of binasal hemianopsia, for of course they are not. The question is, are they typical of secondary atrophy complicated by binasal hemianopsia? The presence of the atrophy will account for the fields not conforming to the first and second requirements of the definition, for a very superficial examination is sufficient to show that the losses are not confined to the nasal fields and that they are not even symmetrically distributed in the two nasal fields. At this point it should be observed that the authors disarm criticism by remarking:—

"It may appear somewhat imaginative to designate the field defects which accompany these case reports as examples of hemianopsia, for they admittedly fail to show the clean-cut vertical meridians dividing the blind from the seeing retina, which often (though not invariably) characterize certain stages of the homonymous and bitemporal field defects, as will be indicated in the later papers in this series."

To answer the question whether the fields are characteristic of binasal hemianopsia complicating secondary atrophy we must first consider what is the character of *uncomplicated* typical secondary atrophy. Authorities hitherto are fairly well agreed.* We may quote Wilbrand and Saenger as having produced the most monumental work on the subject. After pointing out the frequent absence of visual disturbances for a surprisingly long time after marked changes are visible with the ophthalmoscope and mentioning the slight enlargement of the blind spot, due to swelling of the papilla encroaching on the adjacent retina, they state that the typical disturbance of the visual fields is a concentric contraction from the periphery toward the centre with some impairment of the visual acuity, both of these progressing as secondary atrophy advances, until, if the process is not arrested, total blindness ensues. What sort of fields may we expect to find as the process advances? The temporal half of the visual field is larger than the nasal to begin with (temporal 90°, nasal 60°), so that if the contraction is fairly uniform the time will come when all the nasal field will be lost (60°), while the loss of an equal amount from the temporal side will still leave 30.° We then shall have a small field extending 15° each way from the blind spot while the visual acuity will probably have fallen to less than 10-200.

The visual centre of the field of vision is the macula, but the geometrical centre is the optic disk. The field extends nasally 75° from the disk and temporally 75° from the disk. If now a concentric contraction progresses with such uniformity that exactly 60° is lost from both nasal and temporal sides, 15° will be left on each side of the disk. This will leave "a small field centering around the blind spot"—precisely what the authors state[1] is the typical finding in their cases. Are we not justified in saying that these fields are quite satisfactorily explained as due to concentric contraction, the result of changes occurring in the papilla? Were there an intercurrent binasal hemianopsia grafted onto the fields, as claimed, we should expect to find that before the temporal fields had contracted 30° or 40° the process in the nasal fields would have advanced with decidedly greater rapidity and would show a decidedly greater loss than the temporal. Assuredly, if we are dealing with binasal hemianopsia there must be a loss of symmetrically disposed patches in the nasal fields, over and above what we should expect to find if the loss were merely due to concentric contraction, and so merely kept pace with the loss found on the temporal side.

In discussing visual fields it is important to bear in mind the margin of error due to the nature of the phenomena we are measuring. There is in most cases no sharp line of demarcation where we can say "on one side vision is present, on the other side vision is absent and whoever makes the test will, if competent, find it so." One has only to try it on himself to appreciate this. Also the character of the results obtained by using different sized test objects and different intensities of illumination, showing as they do a very considerable increase in the seeing area with larger and better lighted objects, points unmistakably to the fact that what we are measuring is a relative, not an absolute quantity. The personal equation of the examiner multiplied by the personal equation of the patient equals the result. Perhaps Case 10 is as good an example of this as any could be. In Fig. 21, O.S. shows, with a 1 cm. test object, a field limited to 15° from the disc each way. With a 2 c.m. object, same eye shows a binasal hemianopsia more typical than any other in the whole series. The line of damarcation falls exactly on the vertical meridian except near the macula where it takes in 5° to 10° of the nasal field, somewhat as in typical homonymous hemianopsia. With a 3 c.m. object the nasal field extends in the horizontal meridian to the extreme normal limit of 60°—no suggestion of nasal hemianopsia. Fig. 20 shows the same case at an earlier stage.

"Fields show binasal hemianopsia. V. O. S. fingers; V. O. D. *nil.*" (Authors' italics.)

The chart shows in each eye a large seeing area comprising about ¼ the normal temporal field. This with a vision of nil shows that the personal equation must be reckoned with!

* There has been some question as to the importance of interlacing of the color fields but it will doubtless be found as stated by Cushing and Walker, that this symptom is not characteristic of the disease but is a matter of the personal equation of the examiner.

The true guiding principle was pointed out by Cushing in the discussion of his second paper at the St. Louis meeting. Alluding to the fact that fields, especially color fields, vary as taken by different examiners he says[4]:—

"The condition varies at different times. . . The field assumes a somewhat different configuration . . . but it shows this tendency and it shows that one must generalize rather than particularize about these conditions. Possibly, endeavoring to make the matter register, we may have gone a little further than we were justified in doing."

Adopting this valuable suggestion, we must not be influenced so much by the findings shown on a single chart, but must weigh the evidence presented by a series. That is, we must generalize, try to detect the *tendency* shown by these fields. Is it a tendency toward binasal hemianopsia? Or is it simply a tendency toward concentric contraction? How shall we answer this without being influenced by our personal leanings toward one side or the other? Would not a composite field made up by combining all those charts shown in the paper be likely to show the type? I have done this for the horizontal meridian. The result was to show an average loss in the whole 44 charts of 50.29° nasally and 50.23° temporally. This is a sufficiently striking confirmation of the suggestion that the real tendency here shown is toward a concentric contraction affecting both sides about equally.

In addition to constructing the composite field I have gone over each case separately and fail to find any distortion of the fields which cannot be explained readily as due to secondary atrophy. It is not to be supposed that each case will show symmetrical *uniform* contraction. By no means. That is the "tendency," but individual cases will vary somewhat irregularly from this type. One of the charts of the left eye of Case 1 (Fig. 2) shows 20° more loss from the nasal than from the temporal side. This does not at first look like concentric contraction. When we investigate it we find that V. equals fingers at 4 *inches*. In an eye so nearly blind we cannot attach great weight to the exact limitations of the fields. The same criticism applies to Case 8, "acuity practically nil"; and to Case 9, "acuity not measurable." I have already mentioned some weak points about Case 10. The last case reported (not under the head of brain tumor) appears to have been a fairly typical case of retrobulbar neuritis. It is described by the authors as, "Blindness with primary involvement of nasal vision in each eye, presumably from pressure of sclerotic vessels." Examination of their records show that the loss of vision was with little doubt primarily a central scotoma with dyschromatopsia. No fields were taken at this stage, therefore we have to rely on the patient's impressions and on the course of recovery, which tends to reverse the course of onset and is an indication of great value. This points very definitely and unmistakably to central scotoma and dyschromatopsia, as the primary defects and the patient's impressions do not definitely conflict with this view. The other characteristic features which make up the picture are: The abrupt onset, the soreness and pain and sense of pressure in the eye (and orbit?), the moderate ophthalmoscopic changes insufficient to account for total blindness but indicative of some inflammatory process, the termination in total amaurosis in one eye (not rare in retrobulbar neuritis, but extraordinary if due, as surmised by the authors, to pressure of sclerosed carotids, but of abrupt onset and with the other eye unaffected for two years) and lastly the rapid recovery of some vision, but with permanent central scotoma, in the other eye, also typical of retrobulbar neuritis. The authors admit that "Without post-mortem examination one cannot definitely ascribe such a condition as was encountered in this patient to the lateral pressure of sclerosed vessels." They think it the most likely presumption. They do not discuss the possibility of retrobulbar neuritis. Their explanation of the "unexpectedly happy result" of the operation is ingenious but not convincing. At all events the fields, especially the final field, are more typical of retrobulbar neuritis than of bi-nasal hemianopsia.

We pass now from the question of the occurrence of binasal hemianopsia to the second question raised by the paper we are discussing—the explanation. Two explanations are suggested. Of these two the authors say they "are at present inclined to lay chief stress on the influence of the bilateral arterial constriction," meaning the pressure of the carotids on the optic nerves. We have already discussed this above. Were there such a factor operative it would, as we have said, inevitably produce greater loss in the nasal fields than we should expect to find were concentric contraction alone operative and judging progress by the stage reached in the temporal fields. It appears that this does not occur. There is no apparent tendency for contraction of the nasal periphery to advance faster or farther than the temporal.*

But, even if the objections which I have raised were not valid, the authors evidently do not feel that the theory is entirely satisfactory on other grounds. There is little anatomical and microscopic support for it. It is apparent that it was put forward by the authors as the best hitherto suggested (it was first suggested by H. Knapp) ,and so they "are for the present inclined to adopt it." Although the chiasm tolerates considerable slow pressure, it is hard to believe that there can be sufficient pressure upon it from the third ventricle to force the nerves against the carotids (not always sclerosed, one patient was under 10 yrs.) strongly enough to destroy the nerve fibres without the direct pressure

* A lesion affecting the outer aspect of the chiasm (as distinguished from the optic nerve near the chiasm) cannot cause nasal hemianopsia because at this point the uncrossed fibres to the temporal retina (nasal field) are inextricably interwoven with the crossed fibres to the other half field.

of the ventricle damaging the part of the chiasm on which it impinges, the more so as not all of the pressure exerted by the ventricle is transmitted to the two arteries; most of it must be taken up by the other structures which resist the displacement, especially by the chiasm itself, before any can reach the arteries. Indeed, it has been suggested frequently (Oppenheim, Wilbrand and Saenger and others) that the pressure of the third ventricle might cause bitemporal hemianopsia or total amaurosis, but never before that it might cause binasal hemianopsia.

The second explanation suggested, but not favored by Cushing and Walker, is that the cause is located in the papilla. Can it be shown that the processes in the papilla are adequate to explain the facts? Evidently the authors would be glad to accept this explanation did they not think the objections insuperable.

"Unquestionably some anatomical condition accounts for the fact that with an advancing choked disk which has reached the stage at which recession of the swelling occurs, owing to cicatrical contraction, the fibres which are last destroyed are those originating from the nasal retina in the vicinity of the optic papilla."

The changes in the appearance of the optic papilla are so striking and the changes found elsewhere so slight, that one naturally looks there for the explanation of the loss of function. It is to be noted that the simple edema, which is the first stage of a process which ends, if not arrested, in total atrophy, can reach a very high degree, and last a considerable time without causing noticeable loss of vision. When the swelling begins to subside and evidences of atrophy appear, vision is markedly affected. Whether the swelling diminishes because atrophy has set in (Behr) or whether atrophy sets in because shrinking of the papilla has begun, is disputed. The facts are that as atrophy appears the fields show more contraction and acuity falls. This means that the fibres which come from the periphery in particular and the fibres from other parts of the field in less degree are damaged. The results shown by taking fields with small and with large test objects indicate that the damage even to the peripheral fibres is not at first total. Some fibres are preserved at least sufficiently to conduct such sensations as large test objects excite. Gradually more fibres are affected and to a greater degree. The result is a progressive contraction of the field and a fall in acuity. The cause at work then would appear to be one which affects the nerve fibres to some extent throughout the retina, but chiefly those coming from the periphery.

Is not this just what might be expected of the processes known to be taking place in the papilla? The swelling starts as a damming back of the natural outflow of lymph through the centre of the optic disk (physiological pit) along the blood vessels.[6] The centre and the nasal half are the most vascular and contain the most nerve fibres. Here the edema first appears, reaches its greatest intensity, lingers longest. The central, nasal and most superficial fibres are the ones most exposed to the swelling, the round-cell infiltration, the formation of connective tissue, the cicatrical contraction, and the secondary atrophy. The deeper lying fibres all around and the fibres on the temporal side of the disk would seem to be the least exposed, especially the deeplying fibres at the periphery of the disk.

The authors raise the question whether the fibres which come from the area of the retina adjacent to the disk, which are the last to suffer, "enter the nerve head in some specially protected—possibly central—position." Also they give a diagram showing the central fibres which they surmise are the ones preserved. Is it not evident that the central and superficial fibres are the ones that are least protected and first to be damaged. Possibly the authors were led astray by some confusion as to the distribution in the papilla of the fibres from the retina. They say: "Moreover, did the new-tissue formation at the papilla shut down in centripetal fashion on the nerve head and implicate the fibres from the periphery inward, we would expect an early involvement of the macular bundle with a central scotoma as a common instead of a rare early feature." That is, by what was perhaps a slip of the pen, they make the fibres from the area adjacent to the disk occupy the center and superficial part of the papilla and the fibres from the periphery of the retina occupy the marginal region of the papilla. It is the deepest, the marginal fibres of the papilla, which come from the retina close to the disk, the more superficial and central ones passing over these as they come from the periphery of the retina.

An additional factor in causing peripheral contraction of the fields, especially in the stages before atrophy has set in, is to be found in the retinal ischaemia due to pressure on the arteries by the choked disk. Naturally the periphery of the retina is most affected and especially the temporal retina (nasal field) because most remote from the source of blood supply.

Lastly, Behr, who took this as the starting point in constructing his theory of the pathogenesis of choked disc, explains the peripheral contraction of the fields by attributing it to pressure on the nerves in their intracranicular portion. Perhaps it will be found that this is an important factor.

SUMMARY.

1. It is better to adhere to the classical conception of hemianopsia and require for admission to that category that the cases must show symmetrical losses limited (unless a complication is present) to a *half* field of each eye and due to a single lesion affecting the visual centres or pathways at or posterior to the semi-decussation of the optic nerves. Fields which simulate these,

but are of totally different origin (glaucoma, atrophy, retinitis) may be called *pseudo-hemianoptic*.

2. The cases reported by Cushing and Walker, as examples of binasal hemianopsia, when all the charts are combined into one composite chart to determine the type, show that the true type of loss of the visual fields is a concentric contraction affecting both half fields equally and therefore not to be called hemianoptic according to the accepted use of the term by ophthalmologists.

3. The characteristic form of the visual fields in secondary atrophy is probably due to the distribution of the fibres in the nerve head. This distribution is such that the superficially located fibres are most exposed to the pathological processes and are the first to succumb while the deepest and most peripheral fibres of the papilla are the last to suffer. These come from the area of the retina adjacent to the optic disk, thus accounting for the tendency noted by Cushing and Walker "for the fields to become limited to a small bitemporal field surrounding each blind spot."

4. Were this process complicated in some cases, as suggested by Cushing and Walker, by a pair of symmetrical lesions affecting the outer aspects of the optic nerves near the chiasm where the uncrossed fibres which come from the temporal retina are superficially situated, the damage to these fibres should show itself in a modification of the form of the visual fields. The loss from the nasal fields should exceed what we should expect to find, judging by the progress of the loss in the temporal fields. This does not seem to occur.

5. The last case in their series is probably an example of retro-bulbar neuritis.

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[2] Bull. Johns Hopkins, 1911, p. 194.
[3] Pp. 572, 597 et al.
[4] Jour. Am. Med. Asso., 1911, vol. lvii, p. 220.
[5] P. 595.
[6] Behr, Wilbrand and Salnyn
[7] P. 597.

THE DIAGNOSTIC EVIDENCE OBTAINED BY X-RAYS FROM THE LATERAL ASPECT OF THE SKULL, WITH ESPECIAL REFERENCE TO THE BASE AND ITS ADNEXA.

BY PERCY BROWN, M.D., BOSTON.

AFTER the classical contribution of Caldwell[1] upon the skiagraphy of the accessory nasal sinuses, in which he emphasizes the absolute necessity of the occipitofrontal projection of the cranium as the key to Roentgenologic problems in this region, the lateral projection, with its simpler technic, sank into desuetude, or at least into secondary importance, as a *sine qua non* to diagnostic results. In such lateral projections, when made veritably so, the structures placed bilaterally to the right and the left of the median line become, as to "shadow," superimposed. It has been rightly asserted that such superimposition of projection is fatal to differential diagnosis as between right and left; especially is this true of the maxillary sinus and of the frontal sinus, not to speak of their immediate neighbors, the anterior ethmoidal colonies of cells. Further, it has been asserted that a projection, by x-rays, of the lateral aspect of the skull is of little value save to determine the depth of the frontal sinus. Thus in the lateral aspect of the skull, in so far as Roentgen examinations are concerned, the familiarity nurtured in an easy technic has come to breed a contempt for the character of the information this projection has to offer. It is the writer's feeling that nearly all—and among them many Roentgenologists—who habitually see Roentgen projections of the lateral skull, fail to appreciate how much is afforded for inspection, especially in the vicinity of Reid's base-line.

So complex is the collective Roentgen portrayal of the structures in the immediate vicinity of the cranial-base that simple inspection, at first glance, usually does not mean observation in its fullest sense. Study alone can ensure a productive interpretation.

For limitary purposes in a consideration so brief, we must assume that the adnexa of the skull-base are bounded anteriorly by the infra-orbital ridge and posteriorly by the median occiput. Thus limited, a lateral Roentgen projection of these adnexa presents for consideration five principal entitative regions: (1) the *orbital*, (2) the *frontal*, (3) the *posterior ethmoidal*, (4) the *sphenoidal*, and (5) *the hypophyseal*. Strictly speaking, the mastoid region falls without the above arbitrary limitation, although the lateral aspect of the skull, by x-rays applied *with technical* accuracy, furnishes here a prodigious amount of information (Lange[15, 16]).

The orbital region, when projected laterally, suffers by superimposition of its right and left aspects, as do all structures bilaterally placed. The orbit becomes a source of radiographic information chiefly when its territory is invaded from without, either by foreign substances (*e.g.* flying metallic fragments), or by neoplastic masses from behind and above (*e.g.* endotheliomata). In the first instance, the normal contour of the orbital cavern is disturbed not at all, save where the projected foreign body has shattered it or is impacted within it. Invasion from above or behind, however, by adjacent morbid processes, may produce a partial or complete obliteration of its usual Roentgen appearance or an effacement of the usual recognizable periorbital partitions and barriers.

Changes in the mural dimensions and in the intramural hiatus normally presented by the *frontal region* (frontal sinuses) are to be observed in lateral projections of the skull and may

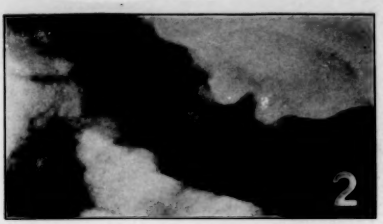
FIVE PLATES

CRANIAL BASE

PERCY BROWN, M.D.



Sellar development at term.



At eighteen months.



At three and a half years.



At ten years.



At fourteen years.



At seventeen years.





Perihypophyseal region in the adult (stereoscopic).



Partial frontal occlusion.



Small frontal hiatus partly occluded.



Frontal mucosal organization.



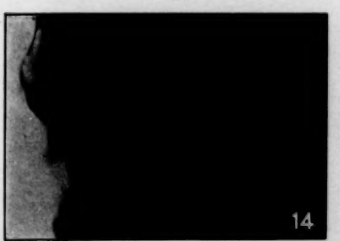
Mucosal changes in large frontal with subsepta.



Frontals and anterior ethmoids of great capacity.



Small frontals with mucosal changes.



Partial posterior ethmoidal occlusion.



Deep frontal occlusion.



Luetic frontal mural organization.



Mural organization of great chronicity.



Influenza infection of posterior ethmoids.



General frontal organization; large posterior ethmoids.



Deep subseptal frontal organization.



General ethmoidal infiltration with slight involvement of large frontal.



Deep frontal with slight mural change.



Pronounced infiltration of all peribasal cavities.



General sphenoidal infiltration.



Posterior sphenoidal infiltration.



Supraorbital frontal prolongation.



Prefrontal osseous thickening (periosteal?).



Intrasphenoidal organization.



Slight sphenoidal mucosal organization.



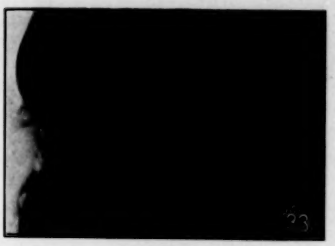
Luetic perifrontal periosteal changes.



Normal base with unilateral post-nasal symptoms.



Sella deformation.
(Cushing's sellar type II.)



Sella deformation.
(Cushing's sellar type II.)



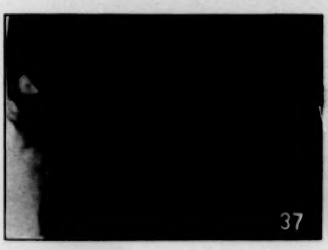
Sella deformation.
(Cushing's sellar type III.)



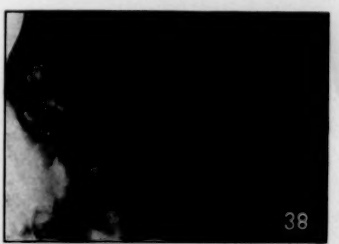
Sella deformation.
(Cushing's sellar type II.)



Sella deformation.
(Type I.)



Sella deformation.
(Type III.)



Sella deformation.
(Type I.)



Sella deformation.
(Type I.)

be produced and maintained by three classes of disorder: (1) infiltrations, of whatever nature, tending to obliterate the normal intramural hiatus; (2) conditions producing changes in the thickness of the mural shadow only as a result of chronic mucosal organization; and (3) structural (usually osseous) changes of a nature metabolic, dyscrasic or infective, which may equally affect other intracranial regions.

The first classification has to do chiefly with the acute and chronic inflammations of the anterior accessory sinuses of the nose, which are most easily recognized by x-rays in the occipitofrontal projection of the skull. Lateral projections of the skull-base, in these ailments, are usually but confirmatory of the occipitofrontal findings (Figs. 8, 9, 15, 19, 23, 24, 25). It is, however, often desirable that the depth of the frontal intramural hiatus shall be known.

In the second classification, where the frontal sinus-walls present mucosal structural change, from causes above mentioned (Figs. 10, 13, 17, 28), the lateral aspect of the skull-base is an essential, as in determining the depth of the frontal walls it is not necessary to differentiate right from left. This essential applies equally to the third classification. Aside from normal variation in mural depth and in the depth of the intramural hiatus, frontal changes of infective origin (*e.g.* syphilis, Figs. 16, 30) or changes of a glandular origin (*e.g.* hypophyseal, Figs. 34, 38) often present themselves as distinct syndromal factors. There is, therefore, presented a series of Roentgenographic portrayals of these aspects of the frontal sinuses showing their wide normal variations in size and depth and also the appearances therein in certain abnormal states. It is a source of satisfaction to note that the appearances in the lateral projection of an abnormal frontal sinus often suggest those which may be more accurately diagnosticated in the occipitofrontal projection. Marked normal variations also, such as supraorbital prolongations of these sinuses can, without difficulty, be recognized laterally (Figs. 26, 13).

In the *posterior ethmoidal region* certain morbid states, such as empyema, can be recognized only from the lateral projection of the skull (Figs. 8, 14, 23, 25). It is here to be emphasized, however, that such findings should be employed chiefly as an adjuvant to the interlateral differentiation of anterior ethmoidal conditions in the occipitofrontal skull projection, and vice-versa. In certain variations of osseous thickness and density (syphilis, hyperpituitarism) it is often hard to recognize the boundaries of individual posterior ethmoidal cells or groups of cells, much less to differentiate, as between left and right, the presence of a pathologic exudate. The recognition, which is generally easy, of the evidence of an anterior ethmoiditis by the occipitofrontal projection, should always stimulate our efforts to investigate the lateral portrayal of the posterior ethmoidal cells. Lack of Roentgenologic acumen in this regard has often deprived the rhinologist of dependable information.

As has been mentioned by Pfahler,[20] the general impression has been that Roentgen rays are of little value as demonstrating disease of the *sphenoidal region*. In his paper he shows that such an impression is erroneous. He believes, and with justification, that the proper Roentgen examination of this, or any other especial region, can be made complete only by projections from all angles. In dealing with the lateral projection of the skull-base, the writer asks consideration thereof, as regards the sphenoid, because he feels that in this aspect only, with proper technic (see below), can the sphenoid be interpreted in its most valuable clinical relation to the pituitary region. This relation is of great importance (Gibson,[16] Cushing[7]). As in any other region bilaterally placed, differential bilateral investigation is essential and the value of Pfahler's demonstration of the occipitofrontal sphenoidal projection is by no means to be under-estimated.

The position of the sphenoidal space, with relation to the skull-base, is a familiar one. In common with the rest of the nasal accessory family, it has great normal variation, but its contour can be varied as well by the presence of pathologic change. The relation between the floor of the sella turcica and the adjacent wall of the sphenoid is equally interesting. The interpretation of differential opacity alone is at times difficult, however, in the lateral projection of the skull. The definite outline of the sinus renders the presence of general sphenoidal infiltration often more recognizable than the same process involving the posterior ethmoids alone (Figs. 25, 28). When sphenoidal disease coexists with similar abnormality in other nasal sinuses, however, it is seldom to be overlooked (Fig. 23). The invasion of the sphenoid by the sellar changes to be observed in some instances of hypopituitarism, is to be seen in Figs. 33, 35, 37.

Studies by the help of x-rays of the *pituitary region*, with especial reference to the conformation of the pituitary fossa and the variation therefrom, have been made by several observers, first of whom was Oppenheim.[17] As a comparative study dealing with the relation between classified syndromes of pituitary aberration and their Roentgen appearances, the work of Cushing[7] stands alone. The Roentgenologic art, struggling in a new field, owes the strength of its present firm foundation in this field to the profundity of the support given it by this observer. It is to be noted that nearly all reports of Roentgen investigations using the sella turcica as their specific objective point, have been of European origin. Little has been contributed by American Roentgenologists save those stimulated by Cushing's enthusiasm. The conformation of the pituitary region (Roentgenologically, the pituitary fossa) varies normally nearly to the degree that the accessory sinuses present such variation. The element of age in the normal individual does not make for such contrast, how-

ever. Whereas in early life the sphenoidal sinus may be Roentgenographically uninterpretable, a recognizable contour of the pituitary fossa appears at term (Fig. 1). In addition to this, the sella, apparently, approaches its mature conformation in early adolescence (Figs. 2, 3, 4, 5, 6), which cannot be said of many of its neighbors in the cranial anatomic complex.

As Roentgen evidence of pituitary disorder, Cushing classifies the deformed pituitary fossa into three types. He does not consider, however, that the presence of a normal-appearing sella, or rather a sella well within the classification of normal variation, necessarily indicates that hypophyseal changes are absent, whether or not other manifestations of the syndrome in question are present. This classification with succinctness obviates a prolonged discussion of the Roentgenologic aspects of the situation:—

(1). A type in which the clinoid apophyses and the dorsum sellae are generally thickened (allowing for the slight magnification of the Roentgen projection (Figs. 36, 38, 39).

(2). A type in which the same structures have undergone a diminution in shadow or thinning, from the effect of pressure absorption (Figs. 32, 33, 35) and

(3). A type in which there is evidence of general destruction of the whole Roentgen-delineation of the pituitary fossa (Figs. 34, 37).

Cushing[7] has also called attention to certain changes demonstrable by x-rays in the vicinity of the sella, as well as somewhat remote from it. But two of these, perhaps, may come within the scope of a consideration of the cranial base. One is the often enormously increased depth of the frontal sinus, seen in the hyperpituitary group, previously mentioned above in the consideration of the frontal sinus. Another is the invasive effect of strumous degeneration of the hypophysis upon the intimate morphology of the sphenoidal sinuses. To the writer this possibility is of the greatest importance since by it an entirely new phase is added to the Roentgen pathology of the sphenoid. (See figures thus referred to under "sphenoid.")

That the sella turcica varies widely in its normal Roentgen-portrayal may be inferred from its outlines shown here in cases by no means of hypophyseal origin (Figs. 8-31). Interesting measurements have been made by certain observers and herewith is given a mere suggestion of their exhaustive results:—

MENSURAL LIMITATIONS OF THE PITUITARY FOSSA (IN MILLIMETERS)

	Length.	Breadth.	Depth.	Measurements.
Fitzgerald[9] 1910	10-14.5	14-17.5	6.5-7.5	Cast measurements
Gibson[10] 1910	12 (av)	13 (av)	6 (av)	In situ
Keith[12] 1911	10-12	14-15	8	In situ
*Cushing[7] 1911	15 (nor. max.)		10 (nor. max.)	Radiographic.

* Cushing's increase, of course, allows for radiographic magnification.

Writers who have demonstrated pictorially changes in the sella as a part of the objective symptom-complex of hyperpituitarism have called attention to the undue shadow-thickness of the clinoid apophyses and the dorsum, as evidenced Roentgenographically by the existence of a *double contour* of their peripheral outlines. This appearance, of course, results from the distortion of the shadow of that aspect of the fossa which is *farther away* from the Roentgen plate and, consequently, it is disproportionately superimposed upon the smaller shadow of the *nearer* sellar structures. While this appearance may well suggest an increase in breadth of the sella and, by the same token, a hyperplasia of both the floor and the dorsum sellae, nevertheless, a similar double-line projection can be produced from a normal sella by faulty technic if the element of distortion is not borne in mind. In other words, hyperplastic clinoid apophyses and *dorsum sellae* will usually produce a double line projection of the sellar limitations in the lateral plane, but the presence of such double lines upon the Roentgen plate does not, necessarily, mean the presence of hyperplasia. Possible confusion in this detail of interpretation can be obviated by careful technic.

The question of Roentgenologic technic, as applied to the cranial-base is, of course, most important. Not only is the physical temperament, so to speak, of the Roentgen rays to be adjusted to the unusual demands imposed by the cranial structures, but also there are here problems to be met with reference to interpretation, requiring for solution, a true appreciation of the principles of radiographic distortion. The writer feels that the key to interpretative success, at least concerning the sphenoidal sinus and the pituitary fossa, lies in the employment of the now well-known principle of stereoscopy as applied to Roentgenography. All cases of suspected peribasal mischief should be, without exception, examined by stereo-Roentgenographic methods. Moreover, the stereoscopic projection should be employed not only with reference to the occipitofrontal plane of the skull, but in the suboccipito-bregmatic and in the cervico-bregmatic planes as well. In Fig. 7 there is shown a portrayal of the hypophyseal region stereoscopically projected, which, in order fully to be appreciated, must be observed by means of the Brewster prisms.

SUMMARY.

The writer feels that this meagre exposition may have some excuse for existence if the following points have been made emphatic:—

(1.) That the value of the proper Roentgen-interpretation of the lateral skull, with reference to the accessory nasal sinuses, need not necessarily be dimmed by the more brilliant diagnostic offerings of the occipitofrontal position.

(2.) That the greatest importance be laid upon the already established fact that this cranial plane is absolutely essential to the only im-

portant Roentgen diagnostic step in the pituitary region.

(3.) That neither of these applications, however, can be made properly without an exhibition of the highest type of technical skill and diagnostic judgment.

In conclusion, the writer begs to express his appreciation of the help given him in this work by Professor William F. Whitney of Harvard University. He desires also to acknowledge with gratitude the opportunity afforded him by Professor Harvey Cushing, of Harvard University, of seeing many cases illustrative of a new and fascinating field of endeavor.

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SOCIAL PEDIATRICS.*

BY ISRA S. WILE, M.S., M.D., NEW YORK.

In a recent article Dr. E. P. Lyon has formulated some of the aims of a department of general medicine. He states that it is necessary "to give a broad and comprehensive presentation of the essential, fundamental facts pertaining to the causes, effects, recognition, prevention and cure of diseases and to correlate these facts with the fundamental sciences." It is deemed advisable "to give the student as much knowledge as possible of human beings into whose life he must enter in a much broader, more sympathetic relation than that of engineer to machine." Finally he suggests that it is important "to inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness, without which medicine degenerates into a business or a trade." Assuming that these aims of general medicine are correct, it appears desirable to consider their application to pediatrics.

In a few medical schools there are given didactic lectures in pediatrics with or without clinics, while in other types of schools there is a variable number of clinics without any lectures. While pediatrics is an offshoot of general medicine, it presents many problems that are not generally included in internal medicine. As long as the subject is relegated to a subordinate position in medical teaching, proper instruction for the reduction of infant mortality will be retarded. When the question of preventing infant mortality is considered, the conclusion is inevitable that the medical colleges have hardly begun to give due attention to this problem.

Medical schools exist for the purpose of supplying the community with men who are trained in caring for the public health. If the schools fail to teach their students the methods of preservation of life, they fall short of their ideal purpose. At the present time there is one physician to every one hundred and thirteen families in the United States. The number of medical practitioners is slightly decreasing. The standards of medical education are increasing. The position of the physician is altering in that the community no longer regards him merely as an individual, capable of curing individual diseases, but as a specially gifted man, capable of guiding the public in and to health.

As Dr. Dana has said, "Any improvement in the social and economic condition of the doctor of the future can be secured only by continuing to lead and guide the struggle for hygiene progress. By this he will be made a more important man in the community. He will be called into public as well as private affairs. And as one who can manage the health of a nation, or of a community, he has a greater function than as that of prescribing for an individual."

The problems of infancy and childhood should not be given subordinate positions in the medical curricula when they occupy a most prominent place in the category of medical problems. In 1910, out of a population of ninety-one millions, 18,867,772 represented children under fourteen years of age. There were 10,631,364 children under five years of age, of which number 2,217,342 had not passed their first birthday. To interpret this in another way, one out of every five in the population, according to the census, was a child whose welfare might be considered as belonging to the department of pediatrics.

In considering the deaths from 1900 to 1909 inclusive, out of an average of 595,734, there were 115,373 under one year of age and 188,131 under fourteen years of age in the registration area. This mortality rate indicates that approximately one out of every three deaths within

* Read before the Pediatric Section of the New York State Medical Society, Rochester, N. Y., April 30, 1913.

the registration area falls upon a child under fourteen years of age. Practically one-fourth of the total mortality in the registration area occurs under the age of 2.68 years. These figures will serve to indicate the immense importance of the field to be covered by pediatrics. Such facts should accentuate the responsibility of medical colleges for paying attention to instruction in pediatrics.

George Bernard Shaw has suggested that "what the great mass of patients really needed, at the present time, was not medicine or operations, but money, better food and better clothes —and more frequent changes of the latter—and well-ventilated and well-drained houses." Herein lies a suggestion of a field of medical instruction which has been too greatly neglected by our medical colleges.

Medical efficiency may be viewed from the standpoint of cure and to this extent the grade of efficiency reached depends largely upon the intelligence and capabilities of individual physicians. The second phase of efficiency views the subject from the point of preventive medicine and constitutes a social problem. There is a mixed type wherein cure and prevention are closely bound together, as will be evidenced in the use of antitoxin for both the cure and prevention of diphtheria. The widespread prevention of disease depends upon the profession as a whole.

A moment's thought will convince anyone that pedriatic efficiency, either for the individual physician or for the profession, depends upon many extraneous factors. General education and widespread traditions have their influence upon medical standards. Natural climatic conditions or unnatural conditions of housing or grouping of people may have a pronounced effect upon the efficiency of the profession in limiting disease. The mere legal standards of a community, in so far as they permit child labor and night work for women, distinctly limit the efficiency of pediatrists in eliminating industrial accidents or in safeguarding the health of individuals. Unrestricted marriage laws permit the continuation of the sad grist of defectives and weaklings.

Recognizing the social and economic forces which interfere with medical progress, it is important to train our medical students so that they may appreciate the difficulties with which they will have to contend. I realize that it is impossible to give a complete course in sociology to medical students with the present distribution of the time, but I do believe that a physician with a knowledge of sociology is far better prepared to cope with the social problems in a manner that the future generation will demand.

We lay great stress upon the infant mortality rate. By virtue of its relative importance in community welfare, the study of its prevention demands commensurate consideration at the hands of medical schools. The crime of omission becomes more regrettable when one contemplates that fully 40% of the infantile death-rate is due to preventable causes. The backbone of preventive work lies in widespread education. Physicians are urging more careful instruction in practical hygiene in our elementary schools, and yet the practical social aspects of hygiene, particularly as related to child welfare, are neglected in the great majority of medical colleges in the United States. Even in the matter of infant feeding or general infant hygiene, the physicians are not fully prepared through collegiate instruction to enter upon their duties with credit to the institutions from which they have graduated.

The teaching of pediatrics must be strengthened. Medical colleges should have specially trained teachers for this subject because of its immense value to humanity. With the decreasing birth-rate, it becomes of the utmost moment that we study methods of conserving children from birth to puberty. The pediatrist must give more attention to social hygiene in his teaching.

Philanthropic societies and organizations interested in social welfare frequently complain of the poor medical advice that is offered to patients requiring social support. As far as such criticisms relate to infants and children, the teachers of pediatrics in the medical schools should hearken to the cry. The medical schools must recognize their responsibility for organizing their pediatric departments so as to give instruction and training in the hygiene of infancy as related to community life.

When one considers an enumeration of the methods employed by the city of Charlottenburg for reducing infant mortality, one may appreciate the full meaning of social pediatrics. To enumerate all that this little German city does for the purpose of bringing its children safely into the world and safeguarding them through infancy, is to suggest types of pediatric information which at present scarcely creep into any pediatric department in this country. These social plans consist of:—

1. Free meals for needy pregnant women.
2. Free board and lodging for needy pregnant women.
3. Free confinement for needy pregnant women.
4. Free housekeeper at home for needy women.
5. Free set of clothes for infant at home.
6. Immediate report of births.
7. Prophylactic babies' dispensaries.
8. Supervision of all boarding houses.
9. Temporary homes for mothers and infants.
10. Observation stations for doubtful social cases at temporary homes.
11. Stopping-over stations between changes of boarding houses.
12. Medical dispensaries.
13. Beds for ill infants at four institutions.
14. Beds for convalescent children.
15. Family House.
16. Professional city guardianship of all.

It would be impossible to cover the whole gamut of social institutions in a pediatric course, but there is no reason why two or three hours at least could not be devoted to acquainting the pediatric students with the various types of institutions which are of value in conserving the child's life. Such information might be given in a didactic way or in connection with clinical material or through lantern slide lectures dealing with social resources. There might be a marked advantage in instituting a study of the various types of institutions which are related to the care of infants and children. In this connection it must be remembered that too few institutions treating children are under the control or even under the supervision and advice of the pediatrists of medical schools. There is every reason for urging that pediatric hygiene be taught in connection with the problems of communal health.

The value of midwives, the importance of health registration, the value of milk depots and infant consultations are certainly pediatric themes. The relation of day nurseries, boarding-out systems, convalescent homes and babies' hospitals are intimately bound up in the mortality rate. The value of school nurses, medical inspectors, school clinics, child labor laws and district nursing are not foreign material in a broad visioned course on pediatrics. The necessity of open-air schools, the problems of the prevention of blindness, the detection and care of defectives, form topics in social pediatrics which are at present holding the attention of welfare workers, while the physicians are not fully acquainted with their relation to pediatric medicine. Child labor, model tenements, preventoria, and school hygiene are among the topics upon which every pediatrist should be able to give an intelligent opinion to his community in so far as they relate to child welfare.

Of the twenty million pupils in the public schools of this country, five per cent. have pulmonary tuberculosis, twenty-five per cent. have defective hearing, twenty-five per cent. suffer from malnutrition, and over thirty per cent. have enlarged tonsils and adenoids or enlarged cervical glands. Fully fifteen million children require attention to their physical health. The responsibility for securing a healthful environment for these children rests upon the community, it is true, but the pediatrist should be the leader in demanding proper conditions for our public school children.

According to Dr. Holt, 25.9% of infantile deaths are due to tuberculosis, acute respiratory disease, and contagious diseases. These different causes of deaths are "capable of considerable reduction, chiefly through proper housing, isolation and medical treatment." Regarding treatment, the medical student may secure some information, but regarding housing or the relation of income to housing and room congestion, he is woefully ignorant. The relation of nationality to infant mortality is not within his ken. There may be some knowledge as to the value of certified milk for infant feeding, but there is not always the judgment which directs the best method of teaching a poor woman how to bring up her child successfully when a certified milk is beyond possibilities. In fact, students are not always made to appreciate the full social or hygienic value of breast milk, nor are they given the necessary information as to the conditions, physical or social, which make it necessary to remove the child from the breast.

Pediatrists must be social teachers and all the stress should not be placed on municipal nurses and health officers. At the present time, however, our medical schools are not giving the first steps in social pediatrics.

Practically fifty-two and a half per cent. of infantile deaths are caused by acute gastro-intestinal diseases, marasmus and inanition and prematurity after the seventh month. This general type of mortality may be reduced through proper care and feeding. The principles of infant feeding are now being taught, though sufficient emphasis is not placed upon instruction in the methods and relative values of artificial feedings. Proprietary foods merit attention so that their indications may be fully understood. It is proper that students should receive unbiased information as to the constituents of proprietary foods, instead of being at the mercy of the semi-scientific statements of detail men. It is equally important that instruction be given regarding wet nurses, infant consultations, and baby farms.

Inasmuch as forty per cent. of the infant mortality is preventable and pediatrics may claim for its field one-fifth of the total population, the necessity for instruction in social hygiene falls especially upon the teachers of diseases of children. The responsibility for general ignorance as to the sociological phases of medicine may in part at least be left at the gates of medical colleges. Proper pediatric education should include at least an outline of the numerous powerful social factors which are involved in the prevention of child morbidity and mortality.

The fundamental causes of infant mortality are poverty and ignorance. The physician may not be able to relieve poverty, but he should be able to correct ignorance and discipline its stepchild, neglect. The medical problems are thoroughly bound up in the social aspects of infant mortality. The pediatrist, teaching methods of prevention, must take into consideration the underlying social conditions or his teaching must be inadequate. Pediatric medicine should be taught in its relation to community life. This is the only way in which the preventive phases can be presented to students in their true relative importance.

The relation of the infant death-rate to the occupation of mothers during pregnancy and after labor is rarely mentioned in a pediatric lecture room. The value of home nursing and district nursing as opposed to public hospitals,

deserves careful consideration. In fact the entire problem of institutions for children from the foundling asylum to the boarding schools affords much valuable information for the pediatrist. How many pediatrists ever consider what type of cases really should be sent to a babies' hospital and what type of cases will have better chance of living if kept within their own homes?

Eighty-five per cent. of infant mortality occurs among children receiving artificial foods. The problem of municipal milk supplies and milk sanitation involve some fundamental social concepts that might well be applied to pediatrics.

The relation of poor ventilation, room congestion, baby farming, over-dressing, vital statistics, housing, playgrounds, recreation facilities, sex hygiene, special classes for the tuberculous, the cripples, the blind, and the countless other aspects of pediatric hygiene, merit consideration in a course that is designed to train men in the prevention of infant mortality and in the conservation of childhood. Eugenics, illegitimacy, alcoholism, pre-natal care, milk stations, educational classes, and social service in connection with dispensaries and hospitals are special problems that are bound up in decreasing the death-rate in infancy and childhood. Social pediatrics should place stress upon them. To adequately teach the conservation and protection of infancy and childhood, medical schools must be socialized in spirit. The pediatric departments, particularly, must participate in this new awakening because the problem of lessening one-third of the total mortality comes within the scope of pediatric work.

A full consideration of the social origin of many of the deaths that occur during childhood marks a new epoch in rational etiology. Physicians of the future will be unable to escape their responsibility for not possessing knowledge upon this subject. The medical schools must readjust their teaching of pediatrics so as to supply the type of information which is most necessary for protecting the community from the plague of preventable diseases. The students are entitled to receive lectures upon social questions as related to the causes of infantile diseases and they should be given some training in the value of the various types of institutions that exist for the prevention, control, or relief of diseases. Social pediatrics simply means teaching pediatrics in the light of the social bases of disease.

If pediatrists are to be leaders in the preventive medical work that is now the present ideal in medicine, the pediatric teachers must be aroused to their responsibility. The teachers in the medical schools must become conscious of their duty in the matter of affording adequate training to the students who go to them for the purpose of being trained along the lines that will develop them into the finest type of efficient, conscientious social pediatrists. In short, social pediatrics must be taught. When this time comes, the graduates of our medical schools will receive from the pediatric departments the training which indicates an understanding of the problems of humanity. The graduates will go out into the world in possession of knowledge, confidence, and ambition, born of a consciousness that "none of us liveth to himself and no man dieth to himself."

Reports of Societies.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, APRIL 23, 1913, AT 8.30 P.M.

The President, DR. CHARLES A. E. CODMAN, in the chair.

MARKED ARTHRITIS DEFORMANS GREATLY IMPROVED BY PHYSICAL MEANS.

DR. A. B. HIRSH: The patient shown has been through the usual course of treatment and has gone the round of the different spas without benefit. She was very much bent and was obliged to use a cane in walking. The treatment has been by electrical methods alone, the static and high frequency coil currents. Bacterial infection was excluded by the laboratory examinations and the condition resolved itself into one of long continued absorption of toxins from roots of teeth. The case shows the value of long continued physical treatment in those cases otherwise almost impossible of relief.

A MODERN EXTRAPERITONEAL CESAREAN SECTION AND THE BEST TECHNIC FOR ITS PERFORMANCE.

DR. BARTON COOKE HIRST: The operation is illustrated by a series of drawings. An incision is made below the umbilicus, and large enough to extract the child's head. After making the incisions in the two layers of the peritoneum they are sewed together, which immediately closes the peritoneal cavity, making the operation extraperitoneal. Then follows the incision in the uterine wall made in the ordinary way, and the extraction of the child's head with forceps. The lower uterine segment is sewed with double catgut and the abdominal wall closed in the usual way. It has been found to increase hemorrhage if the placenta is delivered from the uterine wound. It is rather better to clip the cord off, drop it into the uterus, sew up the uterus and deliver as usual. If the woman is not in labor it is necessary to extract the placenta through the uterine wound.

DISCUSSION.

DR. JOHN B. DEAVER: The fact that Dr. Hirst is one of the two who have done this operation in this country and that he has done nine of the ten operations done speaks for itself from the standpoint of experience. It always appeals to me as good surgery to deal with the condition extra-peritoneally. By Dr. Hirst's technic there may, it seems to me, be perhaps a little greater danger to the life of the child.

DR. GEORGE M. BOYD: The lowered mortality in Cesarean section has led some of our American surgeons to resort to the extra-peritoneal operation. I

believe that the Cesarean section is a child-saving operation.

DR. WILLIAM R. NICHOLSON: I have witnessed two-thirds of the operations which Dr. Hirst has performed by this technic. Within five years I believe there will be a larger percentage of men doing his operation in selected cases. Statistics do not prove that the true extraperitoneal technic is any better than the trans-peritoneal method. Dr. Hirst has used a continuous stitch, which seems to be absolutely tight and leaves a space of 8 or 10 cm. and 3 or 5 transversely. The true extraperitoneal method has not a point of any advantage. If the case is septic the patient will die just as readily no matter which technic is employed. The general obstetric operator who has not the facilities for becoming especially expert in technic I believe will do better to adhere to the intraperitoneal route.

DR. E. E. MONTGOMERY: One of the diagrams seems to show that Dr. Hirst opened the peritoneum and made his operation extraperitoneal by closing up the peritoneum on either side. Without question this is an operation which is preferable to the method known as the pure extraperitoneal. Every operation must be judged by its mortality, morbidity and the conditions in the event of subsequent pregnancy. Statistics indicate that there is not great demand for an extraperitoneal operation in the ordinary case where there is no reason to suspect infection. The section of the peritoneum in Dr. Hirst's method lays bare the uterus and I should like to ask what influence this has upon the action of the bladder.

DR. EDWARD P. DAVIS: Dr. Hirst's description of this technic is an interesting contribution, but the operation is not the extraperitoneal section that I have seen. I welcome, however, most heartily this method of delivery through a peritoneal fistula. I should like to know what Dr. Hirst would do in cases of sepsis. Personally I should not like to employ this method in the presence of hemorrhage or in cases in which I had doubts as to the condition of the uterine muscle.

DR. JONATHAN LARKIN FORWOOD, Chester: I have done Cesarean section 42 times in the Chester Hospital in a period of ten years. My operations have been intraperitoneal. A vertical incision is made through the abdominal walls in the usual way. I formerly made the incision large enough to lift the uterus out and then opened the uterine walls and delivered. Now I operate by cutting through the anterior surface of the uterus an opening large enough only to deliver the child. Hemorrhage has been controlled by the uterine arteries being held by an assistant placing a hand on either side. I do not cut low down in the lower segment for I believe much of the hemorrhage comes from the fundus of the uterus. When the uterus has been sewed up ergot is given hypodermically. In three of the 42 cases instruments had been appiled and there was infection. I operated on one woman four times, upon three other women, twice.

DR. H. S. WIEDER: I should like to ask Dr. Hirst what effect this technic has upon the involution of the uterus following labor, and whether there have been any sypmtoms referable to the bladder from interference with this band of adhesion reaching from the anterior abdominal wall to the lower segment of the uterus?

The paper was further discussed by Dr. Foulkrod and Dr. Bland and closed by Dr. Hirst.

Book Reviews.

Surgical Operations with Local Anesthesia. By ARTHUR E. HERTZLER, M.D., Surgeon to the Halstead Hospital, Halstead, Kan.; Surgeon to the Swedish Hospital, Kansas City, Mo. New York: Surgery Publishing Company. 1912.

In the preface the author states "the object in presenting this book to the profession is to furnish in a convenient form the technic of some of the commoner operations that can be done in a satisfactory manner under local anesthesia. I have had in mind the needs of the general practitioner, and the surgeon who works without the advantages which accessibility to a Hospital affords."

In other words, this is not only a primer of local anesthesia, but to some extent an operative text-book: this explains certain notes printed in red ink, on the margins of the pages, which otherwise might seem superfluous.

The book is a small volume, well printed and illustrated, and is a very satisfactory introduction to local anesthesia. The author wisely advises his readers, not to try to develope local anesthesia unless they are prepared to study and to practice its minute details, to operate slowly, and with an unusual knowledge of minute anatomy; time is necessary to perfect technic. The consideration of the advantages and disadvantages of local anesthesia as a whole, and of the various drugs in particular, is fair and satisfactory. Altogether, the little volume may be recommended both to students and to practitioners.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. New York: E. B. Treat and Company. 1913.

This thirty-first annual issue of a standard year-book aims to represent accurately the progress of the past twelve-month in all branches of medical science. It is the work of 31 distinguished contributors, and is fully illustrated by 42 full page plates and 110 cuts in the text. The first part is a dictionary of materia medica and therapeutics, including particularly a general review of salvarsan and a chapter on radioactivity and electro-therapeutics. The second part is a dictionary of treatment, with special articles on anesthesia, blood examination, brain surgery, cancer, lung surgery, syphilis, thyroid surgery, and tuberculosis. The third part is devoted to topics of public health, including medico-legal, forensic, and state medicine. This year there has been prefixed to the volume for the first time a glossary of 31 new and unfamiliar terms. The work maintains well its value and interest for general practitioners desirous to keep themselves informed of progress in their profession.

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A STATE HEALTH LAW.

AN important bill, providing new machinery for the prevention of disease, was recommended by a Public Health Commission, of which Dr. Hermann M. Biggs was the head, appointed by Governor Sulzer of New York. This bill, having passed both houses of the legislature of that State has, by its governor's signature, become law. It is provided that there shall be a public health council, consisting of the State Commissioner of Health, whose term is to be six years, the salary to be $8,000 the year, and six members appointed by the governor, of whom at least three shall be physicians and one a sanitary expert. This council is to enact, and from time to time amend, a sanitary code, applicable everywhere within the State except the metropolis; but each city and town may enact additional regulations not inconsistent with the State code. The council has no executive, administrative or appointive power or duties. Heretofore there have been six divisions of the State Department of Health—administration, sanitary engineering, laboratory and research, communicable diseases, vital statistics, publicity and education. These divisions are now written into the statute and to them are added three new ones, each to be in charge of a director—child hygiene, public health nursing and tuberculosis. The Commissioner of Health is charged with the enforcement of the public health law and the sanitary code and shall exercise general supervision over local health officers. He must divide the State periodically into twenty or more sanitary districts, appointing for each a sanitary supervisor, who must be a physician, and whose duties shall be: An annual sanitary survey of his district; organization of district conferences of health officers; adjustment of questions of jurisdiction arising between local health officers; the study of causes of excessive mortality from any disease; the promotion of the registration of births and deaths; inspection of labor camps and enforcement in them of the sanitary code, inspection of Indian reservations; securing the coöperation of physicians in the improvement of public health; the promotion of educational campaigns on public health.

The Commissioner of Health may employ public health nurses, assigning them from time to time to assist sanitary supervisors and local health officers in the control of infection. He must recommend to city authorities the establishment of hospitals for infectious diseases, and shall inspect all such institutions. The powers and duties of town and village health boards are by this act transferred to the respective boards of trustees. Should any of the latter fail to appoint a health officer the Commissioner of Health may exercise the powers of such an officer in that locality, the Commissioner's expenses being a charge upon the locality. The Commissioner is empowered to investigate the enforcement of the tenement house laws in all cities. Every health officer shall receive a respectable compensation for his services, not as formerly when, in one instance, the village dog catcher got a larger salary than the health officer. In communities of 8,000 or less at least ten cents per annum per inhabitant shall be paid; health officials in populations of 8,000 or over shall have an annual salary of not less than $800; and health officials shall have an additional compensation which shall be equal to the charge for consultation services in the locality" in times of epidemic. Health officers may employ any number of public health nurses they may deem necessary "within the limits of appropriation made therefor by the city, town or village."

The tuberculosis registration law of the State is amended to permit the reporting of cases of tuberculosis by physicians over the telephone or in person as well as in writing. Health officers are authorized to cause every reported case of this disease within their jurisdiction to be visited by a public health nurse, unless the physician making the report will carry into effect the procedures and precautions required by the

public health law and the sanitary code, when the nurse shall act under his direction and supervision. Each registrar of vital statistics must report promptly to the health officer the name and address of every tuberculosis patient that has died, and the health officer must ascertain if such patient had previously been reported by the doctor signing the death certificate. If any doctor has been found to have failed repeatedly in reporting cases of this disease, the health officer shall state his violations to the local health board, which body shall enforce the penalty for the violation (a misdemeanor) of the tuberculosis law. Health authorities are given control over persistently dangerous and careless patients afflicted with an infectious, contagious, or communicable disease; on complaint to a magistrate, with proof that such patient is a menace to the community, the patient may be committed to a hospital for the protection of his family and of the public.

THREE MEDICAL MEETINGS.

THREE important meetings of medical societies are to be held in Minneapolis, Minn., during the coming week. On June 13, 14 and 15 is to occur the thirty-eighth annual meeting of the American Academy of Medicine. On June 16 and 17 is the fifteenth annual meeting of the American Proctologic Society. And from June 17 to 20 is to be the annual meeting of the American Medical Association.

The program of this last meeting has been fully detailed in the *Journal* of the Association. Attention should be called, however, to one of the matters of business which is to come before the House of Delegates on this occasion. In 1908, the American Institute of Homeopathy appointed a committee, consisting of Dr. Herbert D. Schenck, of Brooklyn, N. Y., Dr. J. B. G. Custis and Dr. William R. King, of Washington, D. C., Dr. Royal S. Copeland, of New York City; Dr. Frank Richardson, of Boston; Dr. Alonzo C. Tenney and Dr. Fred W. Wood, of Chicago; and Dr. Benjamin F. Bailey, of Lincoln, Neb., "to present to the American Medical Association on behalf of the homeopathic physicians of the United States a proposition for a joint investigation of the scientific merits of the method of drug slection expressed by the formula "*Similia Similibus Curentur.*" On May 17, 1913, this committee presented to the president and secretary of the American Medical Association a letter reading in part as follows:—

"This rule has governed the selection of drugs in the treatment of disease by a considerable number of medical practitioners for over a century. We feel that the time has come when this formula should be brought before the whole medical profession, carefully investigated by modern scientific methods and a determination made of the exact value of this method in the practice of medicine. We seek this,

"First, Because the voluntary testimony of a large number of physicians who do not understand the correct application of this method indicates their desire to make use of it.

"Second, Because a large number of men who attempt its use ought to be able to get a better understanding of its true significance.

"Third, Because we believe a large majority of the medical profession would have their usefulness and their power to benefit the sick largely enhanced by a thorough knowledge of this method.

"Fourth, Because we believe that suffering is lessened and sickness more speedily and comfortably terminated through drugs administered according to the rule of similars.

"Fifth, Because we feel that a careful investigation of this subject belongs to the whole medical profession and not to any single branch of it.

"Sixth, We feel that such research regarding the formula of similars is desirable. Because the exactness of modern science with the present means of investigation, together with the accurate observation of the subjective as well as the objective symptoms, make it expedient to investigate the action of many drugs coming into use at the present time, as well as to re-examine those long proven.

"For the above reasons we pray that your organization appoint a Committee of Five to meet a like committee from the American Institute of Homeopathy to discuss this subject with a view of attempting a demonstration of the accuracy of the theory of similars, or of proving its falsity.

"It seems to us that its joint investigation should be made under the auspices of some research laboratory like the Rockefeller Institute of New York or the McCormick Institute of Chicago. These institutions have the experts necessary for such a test; with trained eyes they could follow its course from start to finish. Whether the result of the particular investigation should prove satisfactory or not, the effort would not be wasted because a list of drugs in common use among the members of your Association as well as ours, can be selected for this study of their physiological action. These accurate observations would be of permanent value to both schools.

"After careful investigation of the effects of these drugs in different strengths upon the hu-

man body, as well as observing their poisonous effects in animals, an extensive trial of their therapeutic efficacy should be made in some of the large public hospitals to test the action of these remedies in exemplifying this theory of drug administration.

"In recent years every effort has been made to unite the medical profession. A large number of legal practitioners is kept from affiliation because of its belief in a method of drug selection, the truth of which is questioned by the majority. Let us make a thorough test of this hypothesis. If it is proven true, humanity will be benefited by the enlarged and improved armamentarium of all physicians; if it be disproven, the last obstacle to medical union will have been removed.

"To the end, therefore, that the truth be established, let us put this theory to the test proposed. Naturally we feel confident that the principle will be established, but in the interest of mankind we request that you join us in a scientific demonstration of the truth or falsity of the theory of cure promulgated by Samuel Hahnemann."

The action of the House of Delegates of the American Medical Association on this letter, and its proposition, will be observed with interest by physicians throughout the country.

THE DEFEAT OF TWO UNDESIRABLE MEASURES.

IT is a matter of congratulation to the community and to the medical profession of this State that the General Court last week defeated two very unwise measures brought before it under the guise of legislation for the benefit of public health. The first was a bill providing for the reorganization of the State Board of Health by substituting for the present simple, inexpensive, efficient body, serving largely out of public spirit and professional zeal, a paid commission of five members, one of whom should be a sanitary engineer, one a pharmacist, and three "learned in the science of medicine and hygiene." Massachusetts has reason to be grateful for the disinterested and competent work of its present State Board of Health. Such offices should be the last to be made political rewards and prizes of pecuniary ambition.

The second measure, happily also defeated, was a bill (House No. 2535) "to provide a definite policy for the treatment of tuberculosis," and carrying an appropriation of $500,000 to be expended for the construction of tuberculosis hospitals. Tuberculosis, unlike insanity, is primarily a local problem, and the ultimate responsibility for dealing with it, should rest with local authority. Massachusetts is again fortunate in the disinterested and efficient service of the members of its board of trustees of existing State hospitals for consumptives, who have exercised such general supervision as was needed over the tuberculosis work of the State and have demonstrated and developed the methods by which local communities may most properly and economically deal with their respective problems and conditions. A change in method, such as that suggested by the defeated bill, would be not only an undeserved reflection on the admirable work of the trustees of State hospitals for consumptives, but an undesirable change of policy and shifting of local responsibility.

The community is to be congratulated that both these undesirable bills have failed to pass.

THE END OF THE FRIEDMANN FALLACY.

THE activities of Dr. Friedmann in this country received a sudden check by the action of the New York Board of Health. On May 26, the day when the first Friedmann Institute was opened in New York, Dr. Joseph J. O'Connell, health officer of the port, in a letter to the health commissioner, Dr. Lederle, requested that the administration of the Friedmann treatment for tuberculosis be prohibited "until such time as those affirmatively interested in its administration shall satisfy the health department of its innocuous character." The letter continues:—

"The reports of the investigator of your department are all to the effect that the dangers which might be apprehended in such a form of treatment are actually present therein. He finds that the patients subjected to this treatment have not improved, but have lost ground to an extent greater than might be expected from the natural ravages of the disease.

"He finds that where the tuberculous condition had affected one side prior to inoculation with the serum, there was after such inoculation an unnaturally rapid development of the tubercular process on the hitherto healthy side, which indicates that the operation of the alleged cure had a tendency to accelerate rather than retard the progress of the disease.

"It seems to me that it would be culpable for us to hesitate longer and that our duty now is to insist upon such a regulation and supervision of this enterprise as shall prevent the perpetration upon the public of a dangerous and cruel fraud. We cannot overlook the fact that this treatment has been exploited much after the manner of the

exploitation of certain so-called mining securities, and other financial schemes from which the credulous public has suffered.

"The wide advertisement of the serum has had an effect of awakening a final and pitiful hope in the breasts of the desperately ill, which shrewd and conscienceless men might turn into an immense financial profit. There has been time and opportunity in plentiful measure extended to Dr. Friedmann and those who propose similar remedies for tuberculosis to demonstrate the therapeutic value of their treatments, but there has been no such demonstration of value. On the other hand, we have before us reports of the gravest character."

This letter was followed by almost immediate action. On May 29 the New York Board of Health, by unanimous action, added a section to the Sanitary Code which puts an end to the use of the Friedmann treatment, for the time being at least, in the City of New York. This reads as follows: "The use of living bacterial organisms in the inoculation of human beings for the prevention or treatment of disease is hereby prohibited until after full and complete data regarding the method of use, including a specimen of the culture and other agents employed therewith, and a full account of the details of preparation, dosage and administration, shall have been submitted to the Board of Health of the City of New York, and until permission shall have been granted in writing by the said board for the use of the same." Infringement of the section is a misdemeanor, subjecting the offender to a year's imprisonment and a fine of $500. The resolution which resulted in the passing of this ordinance was accompanied by a preamble stating that in the judgment of the board the use of such living bacterial cultures might be fraught with danger to the individual and to the public health; that the necessity and harmlessness of the procedure could be safely determined only by carefully planned and uncontrolled, and unbiased, scientific measures and observations; that certain tests in the city of an alleged cure for tuberculosis were being rendered unsatisfactory, unscientific, and practically futile through the insistence of the originator of the alleged remedy on conditions involving inadequate observation, inaccurate methods of administration, and continued secrecy regarding the substance employed in some phases of the treatment; and that evidence was already at hand to show that the so-called remedy did not fulfil the promises of efficiency and safety under which it had been permitted in the city, but on the contrary, during its administration many patients had suffered serious and unduly rapid progress of their disease. Within an hour after the board of health adjourned the recently established "Friedmann Institute" on West End Avenue, the directorship of which Dr. Rambaud, head of the New York Pasteur Institute, had accepted, closed its doors. Shortly afterwards the news was received that Dr. Friedmann, then in Providence, R. I., treating patients, had abandoned a projected visit to Woonsocket for the same purpose, and had announced his intention of returning immediately to Germany.

His departure presumably terminates the attempt to introduce his method of treatment in this country, and happily will probably also result in the dissolution of the so-called Friedmann Institutes, actual and projected. There can be nothing but congratulation for the prompt collapse of so unworthy a financial enterprise. The only source of regret is that a member of our profession, once in good standing, should have allied himself with it for purposes of gain. Honest fanatic error can be readily forgiven, but not the motives which seem to have prompted what for a time promised to be one of the notable popular medical delusions of the century.

IMMUNIZATION AGAINST DIPHTHERIA.

The general attention of the profession should be called to a method of more permanent immunization against diphtheria brought forward at a recent meeting of the German Medical Association by Professor von Behring and described at length by him in an article in the issue of the *Deutsche medizinische Wochenschrift* for May 8, reviewed in last week's issue of the Journal (p. 860). Already a favorable report of the use of this method has been published by Dr. Schreiber in the issue of the same *Wochenschrift* for May 15, reveiewed on p. 897 of this issue of the *Journal*.

Of course considerable time must elapse before experience can determine the actual efficacy of this method; but the source from which it proceeds leads to the entertainment of high hope for its value. The development of a method which should confer an immunity against diphtheria even for a few years, would not only be of immense advantage in diminishing the incidence of the disease, but would make possible its complete eradication, as that of smallpox and typhoid fever are now possible.

MEDICAL NOTES.

USE OF HORSEFLESH AS FOOD IN FRANCE.—The extent to which horseflesh is used for human food in continental Europe is hardly realized in America. Report from Paris on May 31 states that there are in France 700 establishments where horses are slaughtered for this purpose. In Paris alone 60,000 horses were thus consumed in the year 1911. The usual retail butcher's price for horse-flesh is three and one-half cents a pound.

SALE OF A MEDIEVAL CRUSADER'S HOSPICE.—Report from Paris states that on June 9 there was sold by auction at Rouen the ancient medieval hospital of Aulney, which was given by Richard Coeur de Lion to be an asylum for victims of pestilence, and which served this purpose from about 1200 to 1616 A.D. Since that time the estate has been farmed out to private persons.

BEQUEST FOR CANCER RESEARCH.—Report from London on June 2 states that Mr. Arthur James, of that city, has given to the Middlesex Hospital, the sum of £20,000 to be used for cancer research as a memorial to his brother, William James, who died in March, 1912.

DECLINING GERMAN BIRTH-RATE.—In a recent issue of the JOURNAL we noted and commented upon the declining birth-rate in Germany. Further figures, recently published, indicate that this decline affects the families of mechanics as well as those of the wealthy. During the past ten years the birth-rate has fallen in München from 35 to 22 per thousand; in Dresden from 31 to 20; in Nürnberg from 39 to 26; and in Schöneberg from 26.5 to 13.7.

INTERNATIONAL OPIUM CONFERENCE.—Report from Washington, D. C., states that the International Opium Conference will reassemble at The Hague, Holland, as soon as responses have been received from the governments of Greece, Peru, Switzerland, and Turkey.

"Working in conjunction with the Government of The Netherlands, the State Department here has now managed to secure assent to the conference, not only from the twelve signatory Powers, participants in the original conference, but from a majority of the other thirty-four nations of the world, regarded as essential to a successful covenant to abolish finally the opium traffic in all but medicinal preparations. This result has been brought about only by constant and prolonged pressure, and one of the successful features of the undertaking has been the final agreement of the British Government to suspend permanently all other exportations of Indian opium into China. The moving spirits of the movement in this country anticipate the repurchase by the Government of the $60,000,000 worth of opium now held in Shanghai and its return for consumption to India, in view of the final determination of the Chinese Government not to allow this drug to be sold to its own people."

THE PORTO RICAN PLAGUE EPIDEMIC OF JUNE, 1912.—The weekly report of the United States Public Health Service for May 30, 1913, contains a detailed account, by Dr. Richard H. Creel, of the outbreak and suppression of the epidemic of bubonic plague which prevailed in Porto Rico during June, 1912, and of which full description was given in contemporary issues of the JOURNAL. This report may be regarded as a model of measures to be adopted for the control of similar possible epidemics of this disease in other localities.

ANTI-VIVISECTION IN PHILADELPHIA.—Report from Philadelphia on June 3 states that the Pennsylvania Society for the Prevention of Cruelty to Animals is about to institute proceedings of prosecution against five members of the teaching staff of the University of Pennsylvania Medical School, charging them with inhumanity in their treatment of laboratory animals. This procedure is evidently another attempt of anti-vivisectionists to hamper the progress of medical science and research by interference with legitimate animal experimentation.

GIFT TO VANDERBILT UNIVERSITY MEDICAL SCHOOL.—Report from Nashville, Tenn., on May 31 announces a gift of $1,000,000 by Mr. Andrew Carnegie to the medical department of Vanderbilt University:—

"Of this sum $200,000 would be given to the university immediately for the erection and equipment of laboratories. The income from the remaining $800,000 would be paid annually for the support of the department through the Carnegie corporation. A condition of the donation provides that the direction of the educational and scientific work of the department be committed by the board of trustees to a small board of seven members, three of whom shall be eminent in medical and scientific work."

BOSTON AND NEW ENGLAND.

THE MEANEY MILK BILL VETOED.—In the issue of the JOURNAL for May 29, we commented editorially (Vol. clxviii, p. 811) on the Meaney milk bill, then pending before the legislature, and on the undesirability of its enactment into law. This bill has since been passed by both House and Senate. In the hope of securing the Governor's veto, a protest was filed by the medical committee of the Boston Milk and Baby Hygiene Association, stating the following reasons why the Meaney bill should not become law:—

"First—The bill calls for simply labelling milk as pasteurized milk. This does not call for any control of the kind of pasteurization, which we feel is a very serious omission, as the type of pasturization which the milk receives is very important. The different processes used in pasteurization vary widely and the effect on the quality of the milk depends absolutely on the method used. Unless the type of pasteurization is definitely specified, the fact that milk is labelled pasteurized milk would mean nothing as to its purity.

"Second—The State Board of Health is given no authority over the inspection of milk entering the state or produced within the state. This, we believe, is a grave error, and we feel sure that you must be of the same opinion when you consider the high quality of our State Board of Health and the importance which such inspection would have as a public health measure. We feel that, unless inspecting control is given to a proper public authority, any measure passed would not only fall short of being a public health measure, but might well be a menace to public health.

"Third—We believe that there is nothing to be gained by passing such a bill as the Meaney bill, and that it would rather hinder than benefit further legislation in behalf of a better milk supply, and we sincerely hope that Your Excellency will not approve the Meaney bill by your signature."

The protest is signed by William P. Lucas, M.D., chairman; Arthur S. Howard, M.D.; Maynard Ladd, M.D.; Richard Smith, M.D.; Charles W. Townsend, M.D., and J. Herbert Young, M.D.

As we go to press we learn that the Governor has returned the bill without his approval and that the House has passed it over his veto.

NEW BUILDING OF MELROSE HOSPITAL.—The new concrete building of the Melrose (Mass.) Hospital was formally dedicated last week with appropriate ceremony. The principal address was made by Dr. Julius S. Clark, the senior member of the hospital staff. The patients will be transferred next week from the old building.

SMALLPOX IN MAINE.—Report from Saco, Me., on June 2, states that a case of smallpox was discovered last week in that city, and another in Portland, Me. The patients were removed to isolation hospitals, and all contacts were vaccinated.

SEGREGATION OF THE FEEBLE-MINDED.—In a bulletin recently issued by the Massachusetts Society for the Prevention of Cruelty to Children, a committee of that organization presents the results of its investigations into the problem of the feeble-minded in this state, and urges strongly the complete segregation of such persons as the most humane, effective, and economic method of dealing with this class.

"The society's committee estimates that there are now about 10,000 feeble-minded persons in Massachusetts, and this number does not include any of the 1900 feeble-minded who are this year receiving care in the two state schools, at Waverly and Wrentham, or any of the 600 who are now in the various almshouses. After showing the inadequacy of present provision for the feeble-minded, the committee goes on to say: 'Wherever a careful study has been made, feeble-mindedness is found to constitute a serious drain upon the resources of all public and private agencies for relief. Resources which should be used for the relief of normal persons are diverted to the need of defectives, with the result that conditions which should be made impossible are perpetuatd. All who have studied or had to do with the feeble-minded are convinced that they inevitably become the dependent, delinquent or diseased members of their communities, and producing offspring, these are equally ignorant, immoral and prolific.'

"The probable cost to the state of 20 children in three defective families has recently been calculated to be $64,775, or an average of $3240 for each child. In a report on the 'Hill Folk,' a community of hereditary defectives living in a town of Massachusetts, it is shown that the cost to the state and county of crimes committed by 16 members of the community in the last 30 years has been $10,763.43. Thirty-five members of the Hill families have been state charges and have cost $45,888.57. The prison commission asks this year for an appropriation of $100,000 to build a new department for women and girls at Sherborn, and an additional $100,000 to build a similar department at the state farm for men over 21. The trustees of the Institution for the Feeble-Minded at Waverly are asking for an additional appropriation of about $290,000 to

provide for 345 more of these unfortunates. Feeble-mindedness is 80 per cent. hereditary. By segregation only can sufficient relief be obtained so that these unfortunates will not propagate their kind. Both these appropriations should, therefore, be passed, for they may be looked upon as a sound financial investment for the future well being of our state."

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending June 3, 1913: Diphtheria, 2, non-residents, 2; scarlatina, 30; typhoid fever, 1; measles, 142, non-resident, 1; tuberculosis, 57. The death-rate of the reported deaths for the week was 16.10.

NEW YORK.

COMPULSORY ANTI-TYPHOID INOCULATION.—At a joint meeting of the directors of the Mount Sinai Hospital and of the Mount Sinai Training School for Nurses held on May 26, it was decided to enforce compulsory anti-typhoid inoculation for all members of the house staff and all nurses, orderlies, attendants and laundresses.

BETH DAVID HOSPITAL.—An addition to the Beth David Hospital, on upper Lexington Avenue, was formally opened on June 2, with addresses by Dr. A. Jacobi and others. The new building, which cost $125,000, is four stories in height, and will accommodate 80 patients. In addition to free wards and rooms for private patients, it contains the main hospital offices, the laboratory, and x-ray and operating rooms.

AN ANTIQUE TEAM.—An interesting feature of the seventh annual work-horse parade, on Memorial Day, was a vehicle drawn by a mare 21 years old, entered in the "old horse" class, which was driven by a man of 61 who was accompanied by his father and mother, aged respectively 101 and 103 years. It was stated that the venerable couple had recently celebrated their 75th wedding anniversary.

INCIDENCE OF POLIOMYELITIS.—The *Weekly Bulletin* of the Health Department states that during 1912 there were reported in New York City 504 cases of poliomyelitis, with 57 deaths: a case fatality of 11.1% and a case incidence of 9.8 per 100,000 of the population. In 1911 there were reported 358 cases and 9 deaths, a case fatality of 2.5% and an incidence of 7.2. The increase occurred chiefly in the borough of Manhattan, but of the 361 cases reported there for 1912, over 100 properly belonged to the previous year, owing to the delay of physicians in reporting.

ROCKEFELLER INSTITUTE PENSIONS.—Pensions for its members and associate members have been provided by the governing boards of The Rockefeller Institute for Medical Research, and have been financially secured by the generosity of Mr. John D. Rockefeller, who has, with this purpose in view, increased the endowment of the institute by a gift to it of securities amounting to about $500,000 in value. The pension rules which have been adopted provide three-quarters-pay pensions for members of the institute retiring at the age of 65 after 15 or more years of service, and pensions of from one-half to three-quarters of full pay, according to the length of service, for members and associate members who retire at 60 years of age. There is also a provision for total disability after ten years of service, and for widows and orphaned children, at one-half the scale upon which members of the staff are pensioned.

THE CONTROL OF CANCER.—A press report from New York on May 23 describes as follows the preliminary organization of the national society established to combat the spread of cancer.

"A committee of laymen appointed in April to consider the organization of a society to fight cancer in this country met yesterday afternoon with committees of physicians and formed an association to conduct a nation-wide campaign. The following officers were elected yesterday afternoon; President, George C. Clark, New York City; vice-presidents, Dr. Clement Cleveland, New York City; Dr. Lewis M. McMurtry, Louisville, Ky.; Dr. Edward Reynolds, Boston; Dr. Edward Martin, Philadelphia; Dr. Llewellys F. Barker, Baltimore; secretary, Thomas M. Debevoise.

"The executive committee is composed of Dr. George Brewer, New York City; Dr. F. F. Simpson, Pittsburg; Dr. Livingston Farrand, New York City; Dr. Joseph Bloodgood, Baltimore; Dr. A. D. Bevan, Chicago; Dr. Le Roy Broun and Dr. Howard Lilienthal of New York City; Dr. Jeff Miller, New Orleans; Dr. James Ewing, New York City; Dr. Charles Powers, Denver; Dr. Reuben Peterson, Ann Arbor, Mich.; Dr. William M. Studdiford, New York City; Dr. Frederick J. Taussig, St. Louis; Dr. Howard C. Taylor, New York City; John E. Parsons and V. Everit Macy.

"The committee of laymen includes James Speyer, V. Everit Macy, Thomas W. Lamont, George C. Clark, Frederick L. Hoffman, statistician of the Prudential Life Insurance Company; John E. Parsons, Thomas M. Debevoise.

"The medical associations represented yesterday afternoon were the American Dermatological Association, American Surgical Association, American Laryngological Association, American Otological Association, American Genito-Urinary Association, American Gynecological Society, American Association of Pathologists and Bacteriologists, American Orthopedic Association, American Ophthalmological Society, American Neurological Association.

"Other societies interested in cancer problems will be asked to take part in the campaign. The plan is to enlighten American women on cancer, because 50 per cent. more women suffer from the disease than men. One way of doing this will be by articles in women's magazines and journals of nursing, and pamphlets distributed by visiting nurses, social workers, physicians and through the agency of women's clubs. Another way will be by special instruction in nurses' training schools and by lectures before mothers' clubs."

Current Literature.

Medical Record.

May 31, 1913.

1 *Stern, H. *The Clinical Evidence of Lymphuria.*
2. Ayres, W. *Colon Bacillus Infection of the Kidney.*
3. McMurtrie, D. C. *Prostitution in New York City. A Study in Social Hygiene.*
4. Milne, L. S. *A Case of Addison's Disease with Severe Abdominal Symptoms.*
5. Loblenz, J. M. *Angioneurotic Edema.*
6. Manning, J. V. *A Study of the Flaccid Spinal Paralysis Which Attacked Louis Pasteur in Early Maturity and Its Similarity to an Attack of Acute Epidemic Poliomyelitis, Together with a Study of the Silkworm as a Possible Mediary Host of the Same Disease.*
7. Geldman, A. *A Plea for Early Laparotomy in Abdominal Diseases.*
8. Rush, J. O. *Venereal Diseases in the Negro, with Special Reference to Gonorrhea.*
9. Carter, W. W. *A Simple and Satisfactory Method of Removing Adenoids and Tonsils.*

1. Stern presents a preliminary paper on lymphuria. This condition may exist without any evidence of renal damage. An intermittent juvenile albuminuria without demonstrable inflammatory products but some lymphocytes points to the presence of lymph in the urine. When in addition intestinal disturbances or habitual constipation are present and there is much adenoid tissue, palpable lymph nodes, enlarged tonsils, anemia and exhaustion, a diagnosis of lymphuria is justified. [L. D. C.]

New York Medical Journal.

May 31, 1913.

1. Taylor, R. T. *Restoring Mobility After Bony Ankylosis of the Joints.*
2. Doty, A. H. *The Care of the Tuberculous Employees by the Corporations as Employers.*
3. Reed, A. C. *The Philosophy of Preventive Medicine.*
4. Meyers, V. C. *Hospital Urinalysis.*
5. Miningham, W. D. *Enchondroma of the Scapula.*
6. Pitfield, R. L. *Pylorospasm with Gastric Tetany.*
7. Schulman, M. *Mitral Stenosis.*
8. Parounagian, M. B. *The Old Method of Treatment of Syphilis versus the New.*
9. Gordon, M. B. *Report of Three Cases of Epidemic Septic Sore Throat in One Family.*
10. Hosowicz, B. S. *The Care and After-care of the Consumptive, with Special Reference to New York City.*
11. *Barr, R. A. *Acute Intestinal Obstruction.*
12. Jacobs, L. *The Successful Treatment of Atrophic Rhinitis and Ozena; A New Remedy.*

11. Barr gives his views on the diagnosis and treatment of acute intestinal obstruction and its causes. He believes that digestive disturbances with colic following abdominal operations should be treated with opiates, not with purgatives. Attempts to move the bowels should be made with enemata only. Suspected mechanical obstruction should never be treated or tested by mouth purgatives. Patients with obstruction that does not yield promptly to opiates, gastric lavage, enemata and hypodermoclysis should be treated by section. [L. D. C.]

The Indian Medical Gazette.

May, 1913.

1. Sutherland, W. D. *The Sero-Diagnosis of Syphilis.*
2. *Caddy, A. *Life Assurance in India.*
3. Mulvany, J. *A Note on Judicial Hanging.*
4. *Delany, T. H. *Can Cholelithiasis Be Successfully Treated Without Operation?*
5. *Barry, C. *Notes on One Hundred Consecutive Laparotomies Performed for Pyosalpinx in the Civil General Hospital, Rangoon.*

2. From a statistic study of the data of 11,455 candidates for life assurance in India, Caddy concludes that the native of India is usually shorter than the European, but weighs proportionately the same; that he is very subject to glycosuria and hydrocele; and that opium and hemp drugs are not commonly consumed by the insuring classes.

4. Delany advocates the therapeutic use of ipecacuanha in the conservative treatment of gall-stones.

5. Barry reports and summarizes collectively 100 cases operated for pyosalpinx, with a mortality of 6%. [R. M. G.]

Deutsche Medizinische Wochenschrift.

No. 20. May 15, 1913.

1. Hübner, A. H. *Pathology and Treatment of Degeneration.*
2. *Gudzent, F., and Winkler. *The Treatment of Psoriasis with Thorium-X.*
3. Rosenberg, M. *The Question of the Serologic Diagnosis of Carcinoma. II. The Meiostagmin Reaction.*
4. *Schreiber, E. *The Prophylaxis and Treatment of Diphtheria.*

5. RÜBSAMEN, W. *Further Contribution to the Pregnancy Serum Treatment of the Pregnancy Toxicoses.*
6. *SOWADE, H. *Clinical Experiences with Embarin.*
7. KUHN, F. *The Extended Operation for Malignant Tumors of the Upper Jaw.*
8. SASSE, A. *Incarcerated Hernia of an Appendix Loop, a Contribution to the Etiology of Appendicitis.*
9. FRÖSE. *Nose Operations for the Overcoming of Headache.*
10. GRAUL, G. *Asthenic Constitutional Disease and Diabetes Mellitus.*
11. TOBIAS, E. *The Physical Treatment of Sexual Impotence.*
12. WOLF, W. *The Efficacy of Collargol Injections in Septic Processes.*
13. HOFFMANN, A. *Iron Sajodin in Arteriosclerosis.*
14. BIEDL, A., AND KRAUS, R. *Anaphylaxis as an Intoxication by Albumin Bye-Products.*
15. NERKING, J. *The Question of the Toxic Action of Rhodan Salts.*
16. SCHNÉE, A. *New Uses of the Electric Four Cell Bath.*
17. FRIEDEL, E. *The Sterilization of Insane Persons for Social Indication.*
18. KOPSCH, F. *Two Hundred Years of Berlin Anatomy. (To be concluded.)*

2. The authors conclude that though thorium-X has not proved itself the agent of choice in the treatment of psoriasis, yet its use is justified in all cases in which other methods fail.

4. Schreiber states that in his experience the active immunization suggested by von Behring has proved entirely harmless and efficient, and should be of great value for prophylaxis. For treatment only intramuscular is as suitable as intravenous injection.

6. Embarin is a new preparation, a solution of sodio-mercuric sulpho-salicylate, containing 3% of mercury with an addition of ½% of alsoin. Sowade reports that from his experience it has proved a well-acting antisyphilitic agent. With proper technic, the injections are painless. A great advantage is that with embarin an energetic mercurial treatment can be carried out in three or four weeks. In the event of untoward symptoms, such as high fever, convulsions, unconsciousness, vomiting, or collapse, its use should be discontinued in that individual case.

[R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 19. MAY 13, 1913.

1. STAÜBLI, C. *Simultaneous Temperature Measurements and Their Clinical Significance.*
2. *HEIDENHAIN, L. *Indications for Operation from Statistical and Technical Observations in Acute Occlusion of the Gall Duct by Stones.*
3. FREIDMANN, M. *Continuous Intravenous Infusions.*
4. KLUNKER. *The Use of Couradi-Trochs Tellurium Media for the Recognition of Diphtheria Bacilli.*
5. MANGOLD, E. *Further Observations on Voluntary Contraction of the Tensor Tympani.*
6. TRUMPP. *The Spread of Acute Anterior Poliomyelitis in Families.*
7. *LENK, R., AND EISLER, F. *Experimental Radiological Studies on the Physiology and Pathology of the Intestinal Tract.*
8. JESSEN, F. *Freund's Operation for Emphysema.*
9. JAUCKE. *The Diagnosis of Tumors of the Spinal Cord.*
10. WOLZE, AND PAGENSTECHER, A. *The Results of Treatment by Copper and Roentgen Rays in an Inoperable Sarcoma of the Parotid Gland.*
11. HIRSCH. *The Treatment of the Pains and Paraesthesiae of Tabes.*
12. ORTH. *Traumatic Rupture of a Cerebral Aneurysm.*
13. SCHÜTZ. *A Measure for the Angles of Joints.*
14. EHRWALD, E. *The Transmission of Malaria.*
15. MEHLER, H., AND ASCHER, L. *The Chemotherapy of Tuberculosis. Observations with Barcholin.*
16. SAUERBRUCH, F. *The Influence on Lung Diseases by Artificial Paralysis of the Diaphragm.*
17. ZIELER. *Orthostatic Albuminuria in Tuberculosis.*
18. COHEN, M. *The Condition of the Appendix As Shown by the Roentgen Ray.*
19. SUDHOFF, K. *Johann Christoph Huber.*

2. Heidenhain believes that all cases of acute occlusion of the bile duct by stones should be operated on unless within a week the jaundice has disappeared, the patient has recovered and there is no evidence of other stones remaining in the bile ducts. Heidenhain has found that acute jaundice is no contraindication to operation. He believes that the earlier the case is operated on, the less sick is the patient. By early exploration, secondary manifestations, such as chronic cholecystitis, chronic dyspepsia and pyloric or duodenal obstruction by scar formation, are avoided. Finally, the number and position of gall stones is difficult to determine without operation. Heidenham reports 328 cases. He describes his operative technic.

7. Lenk and Eisler have studied experimentally the effect of hypochlorhydria and hyperchlohydria on gastric motility as determined by the x-ray. Cats were given a test meal of gruel and barium sulphate. Hypoacidity was produced by magnesium oxide. Hyperacidity by dilute hydrochloric acid given before the test meal, directly after and at later intervals. The passage of the barium through the intestines was studied by the x-ray. By such observations it was found in cats that neither experimental hypo- nor hyperacidity produced any motor disturbance in the stomach.

[R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 8. FEBRUARY 24, 1913.

1. OPPENHEIM, H., AND KRAUSE, F. *Partial Removal of the Vermiform Process by a Large Opening in the Fourth Ventricle.*
2. ROTHMANN, M. *Cerebellar Localization.*
3. WOHLGEMUTH, J. *The Pancreas, Liver and Carbohydrate Metabolism.*
4. MORGENROTH, J., AND GINSBERG, S. *Corneal Anesthesia with an Alkaloid of Quinine.*
5. SIESKIND, WOLFFENSTEIN, R., AND ZELTNER, J. *The Use of Salicylate Preparations Externally.*
6. BICHEL, A. *Further Contributions to Thorium-X Therapy in Anemia, Leukemia, and Rheumatic Diseases.*
7. *THEILABER, A. *The Non-surgical Treatment of Carcinoma.*
8. MUNZER, A. *Internal Secretions and the Nervous System.*
9. KUMM, B. *Congenital Dislocation of the Hip-joint.*

7. The author reviews the attempts that have been made to find a method for the non-surgical treatment of cancer. He points out that these are all following along the lines which nature is using in trying to throw off the disease, namely, the production of hyperemia, hyperleucocytosis, and an intense proliferation of connective tissue cells.

[J. B. S., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 19. MAY 8, 1913.

1. VON KUTSCHA, E. *Operative or Conservative Treatment of Punctured Wounds of the Lung.*
2. SCHÜTZ, J. *(Knowledge of) Magnesium Narcosis.*
3. POINDECKER, H. *A Collection of Cases Illustrating Changes in the Hypophysis in Acromegaly.*

4. Arnstein, A. *The So-Called "Schneeberger Lung-Cancer."*
5. von Budisavljevic, Y. *War-Surgery Experiences in Servia.*
6. *Solaghi. *The Effect of Light Gymnastics on the Circulation in the Light of Clinical Experience.*

6. The mechanical effect of the above mentioned gymnastics and exercises on the circulation varies in degree with its extent, with the vascularity of the part exercised, and with the method of execution. It is most marked in the distal circulation, especially in the abdominal cavity, in which the long-continued alteration of compression and relaxation of its contents and the intensity with which this action may be carried out produces marked results. This action represents par excellence a vaso-gymnastic influenced by external agencies. Clinical observations in favorable cases when comparison was possible have shown that the promptitude of the curative effect increases proportionally with the intensity of the mechanical effect on the vessels from the periphery. The results bring to the foreground those agencies which affect the circulatory pressure by reaching the peripheral circulation. [F. S. K.]

Miscellany.

ACTION OF RADIUM ON PLANTS.

In a recent issue of the *Scientific American* is presented an abstract from the *Naturwissenschaftliche Rundschau* of experiments by Professor Hans Molisch in the action of radium on plants.

"Herr Molisch made use both of the radium emanation and of radium salts enclosed in glass tubes or spread on metal plates. The tubes held radium-bariumchloride. The metal plate gave off strong x-rays, which were almost entirely absent from the glass tube because of the absorption. In the experiments with radium emanation, the rays from a flask filled with an aqueous solution of radium chloride passed into a cylindrical glass vessel which was the culture chamber. The twigs placed in this were exposed to a radium emanation ranging from 1.8 to 3.45 millicurie. Only the twigs of Syringa vulgaris were used in the former case, but various plants were exposed to the emanation. The terminal buds of the syringa, which were subjected to the influence of the radium preparations for one or two days in December or at the end of November, and then placed in ordinary light in a greenhouse, budded in a short time, while those not thus treated budded much later or not at all. When the radiation was not continued long enough no effect was visible. When too long continued the effect was inhibiting, injurious, or even fatal. The time chosen for the experiment is also important. In September and October, when the state of rest is firmly established, the radiation had no effect. In January, or later, when the rest-period is already past, there is either no difference observed or else the twigs subjected to the rays seem slightly retarded. This is similar to the effect of the ether and warm bath treatments. The emanation had a more marked effect than the radium salts. This is because it influenced the plants more uniformly and from all sides. Other plants favorably influenced by the emanation were Leriodendron tulipifera, Æsculus Hippocastanum, Staphylea pinnata, and in some degree Acer platanoides.

"The process is too costly for commercial use but is of scientific importance in connection with recent investigations of the effect of narcotics on the chemical composition of resting parts of plants. On the growing parts radium preparations of like strength have an entirely different effect, as Molisch hopes later to demonstrate."

A ROYAL DENTIST.

The memory of Duke Karl Theodor of Bavaria is not yet so cold that the medical profession can forget the noble zeal with which, though born to the ease of a royal prince, he devoted his life to the charitable practice of ophthalmology among the poor. Of an entirely different character were the medical avocations of King James IV of Scotland, who was an amateur dentist. Apparently he used to practise on the members of his court, and enjoyed the procedure so much more than they that he even went to far as to pay them for their sufferings. In Miss Green's "Lives of the Princesses of England," recently quoted by the *British Medical Journal*, is preserved the following extract from the royal cash accounts, relating to the King's dental pursuits:

	£	s.	d.
"Paid for a psalter, three compasses, hammer, a turcase, to take out teeth, and two pair of beads, to the King	0	7	8
Item, to ane fellow because the King pullit furht his tooth	0	14	0
Item, to Kynnard, the barber, for twa tith drawin furht of his hed be the King	0	14	0"

A turcase was evidently an instrument for pulling teeth, though its exact nature, and the etymology of the word, remain uncertain. One might wonder what was the proportionate value, out of 7s. 6d., attached to each of the articles nominated in this item. Apparently the price of a tooth varied, since the poor barber was paid only as much for two as "ane fellow" for one. Perhaps the barber's teeth came out more readily, or perhaps 14s. was considered a lump compensation for the infliction of so many minutes of pain, without regard to the number of teeth lost. If the King indulged in this pastime extensively he could better afford to pay at an even higher rate than in kind; indeed it seems fortunate for him if he were never compelled by a resentful patient to pay by the *lex talionis*.

CHANGES IN MEDICAL CORPS, U. S. NAVY, FOR WEEK ENDING MAY 31, 1913.

FURLONG, F. M., surgeon. Detached from Navy Yard, Washington, D. C., and ordered to U.S.S. *New Jersey*.

HOYT, R. E., surgeon. Ordered to Atlantic Reserve Fleet.

CATHER, D. C., passed assistant surgeon. Ordered to Naval Hospital, Philadelphia, Pa.

ALLEN, D. G., passed assistant surgeon. Commissioned as such from Oct. 3, 1911.

ROSENAU, M. J., M.R.C., assistant surgeon. Commissioned as such from Mar. 28, 1913.

NOLAND, LLOYD, M.R.C., assistant surgeon. Commissioned as such from Apr. 16, 1913.

NEILSON, J. L., surgeon. Detached from Bur. Med. and Surg., Navy Dept., Washington, D. C., June 3, 1913, and ordered to U.S.S. *Illinois*.

ARMY MEDICAL CORPS EXAMINATION.

The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on July 14, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of The Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present forty vacancies in the Medical Corps of the Army.

UNITED STATES CIVIL-SERVICE EXAMINATION.

DENTAL INTERNE (MALE).
June 18, 1913.

The United States Civil Service Commission announces the postponement from June 4, 1913, to June 18, 1913, of the open competitive examination for dental interne, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at $600 per annum, with maintenance, in the Government Hospital for the Insane, Washington, D. C., and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

As the postponement of this examination is due to the fact that only one application has been filed for it, qualified persons are urged to enter it.

SOCIETY NOTICE.

AMERICAN MEDICAL EDITORS' ASSOCIATION. The annual meeting of this Society will be held June 16, at the Hotel Radisson, Minneapolis, Minn.

APPOINTMENTS.

DR. EDWARD WYMAN, of Boston, has been appointed physician-in-charge of the new Dorchester milk station of the Boston Milk and Baby Hygiene Association.

DR. HARRISON J. HUNT, of Bangor, Me., has been appointed surgeon of the Crocker Land Expedition of the American Museum of Natural History, which will start in July for three years' work in the far North.

BOSTON UNIVERSITY SCHOOL OF MEDICINE.—*Dr. John H. Payne* has been appointed emeritus professor of ophthalmology, and *Dr. Nathaniel W. Emerson* emeritus professor of gynecology. *Dr. David W. Wells* has been appointed professor of ophthalmology, and *Dr. George R. Southwick* professor of gynecology.

RECENT DEATHS.

DR. EUGENE F. HOYT, who died last week at Newark, N. J., was born in Niagara County, N. Y., in 1846. He graduated in 1870 from the Hahnemann Medical College in New York City, where, after four years spent in the West, he continued active in the practise of his profession until his death.

DR. ALLEN MOTT RING, who died last week at Arlington Heights, Mass., was born in St. John, N. B., on Oct. 27, 1844. After studying for a time at the University of Edinburgh, Scotland, he obtained the degree of M.D. in 1867 from New York University, and subsequently served as house physician at the Five Points Hospital. He first settled at St. John, where he continued in the practise of his profession until 1881, when he removed to Arlington, Mass. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the New England Alumni Association of New York Medical Colleges. He is survived by his widow, by a daughter, and by two sons, one of the latter being also a physician.

DR. WALTER C. GILDAY, adjunct professor of surgery at the New York Polyclinic Medical School, died on May 31 from acute gastritis, attributed to ptomaine poisoning. He was graduated from the Albany Medical College in 1894 and was surgeon to St. Elizabeth's Hospital.

DR. FREDERICH W. MEYER, of New York, who died on May 28, was graduated from Bellevue Hospital Medical College in 1884.

BOOKS AND PAMPHLETS RECEIVED.

Acute Poliomyelitis by Dr. Ivan Wickman, Stockholm. Nervous and Mental Disease Monograph Series No. 16. New York. 1913.

Geschichte der Ohrenheilkunde von Dr. Adam Politzer, Stuttgart, 1913.

The Shattuck Lecture.

CONCERNING DIABETES INSIPIDUS AND THE POLYURIAS OF HYPOPHYSIAL ORIGIN.*

BY HARVEY CUSHING, M.D., BOSTON,

Surgeon to the Peter Bent Brigham Hospital.

INTRODUCTION.

Pituitary Glycosuria.

It has long been recognized that polyuria, with the appearance of dextrose in the urine—the typical symptomatic expression of diabetes mellitus, in other words—is a not infrequent accompaniment of acromegaly. The view is shared with my co-workers that this glycosuric manifestation of pituitary disease is indicative of the active stage of so-called hyperpituitarism, for in the advanced stages of acromegaly we have observed that the actual glycosuria or low assimilation limit for carbohydrates characterizing its early or recrudescent stages, usually becomes replaced by a high degree of sugar tolerance in which alimentary glycosuria can be provoked only by the ingestion of massive doses of sugar.

Certain experimental investigations with Goetsch and Jacobson[1] have shown (1) that experimental manipulations of the infundibular lobe cause a transient post-operative glycosuria, (2) that the injection of extracts of this lobe will cause glycosuria in well-fed animals, and (3) that after its surgical removal the animals acquire an increased tolerance for carbohydrates, accompanied by adiposity—an experimental condition comparable to the increased sugar tolerance shown by the clinical states of adiposo-genital dystrophy, which we therefore have come to recognize as expressions of pituitary insufficiency.

These findings offer experimental support to the view which we have advanced, that in the early glycosuric stages of acromegaly, in addition to the anterior lobe changes, an hyperplasia or functional activation of the posterior lobe occurs, which in the further progress of the disorder is often replaced by a relative functional insufficiency of this part of the gland.

Aware of the close chemical interrelation of the glands of internal secretion, we fully realize that the mellituria of hypophysial disease may indicate some secondary change in the pancreatic islets, though as yet histological evidence of this is lacking. We feel, however, that in the diabetic conditions under discussion the pituitary lesion is the primary factor, and this is supported, in negative fashion, by a series of observations with Jacobson, in which we have found that animals who have acquired a high sugar tolerance after extirpation of the posterior lobe may subsequently be deprived of the pancreas without the classical glycosuric consequences of the procedure described by Meyring and Minkowski.

Pituitary Polyuria.

It is, however, to the non-glycosuric form of pituitary diabetes that I wish on this occasion to call your particular attention, for this symptomatic expression of hypophysial disease has almost entirely escaped general recognition.

In a monograph written two years ago,[2] dealing with the clinical aspects of hypophysial derangements, comment was made on the fact that in certain cases polyuria and polydipsia may so dominate the clinical picture as to justify the designation of diabetes insipidus—a diagnosis which had actually been made, at one stage or another during the progress of the malady, in a number of the examples of dyspituitarism which were cited.

It was my intention, in conjunction with one of my assistants, Dr. Howard C. Naffziger, to make a detailed report of our personal experiences in this direction during the past few years at the Johns Hopkins Hospital and to assemble the past clinical observations which had a bearing on the subject. This intent has been anticipated in large part by the publication, from Minkowski's clinic in Breslau, of an excellent article by E. Frank,[3] in the Berliner klinische Wochenschrift. This author, on the basis of a single personal observation—a case of bullet wound of the pituitary fossa—in conjunction with the available data from the literature, has taken an even stronger position in favor of the hypophyseal relationship to diabetes insipidus than we might have ventured to assume. However, the matter is of sufficient general interest to justify, I trust, the bringing before you in this Shattuck Lecture of such facts as may be added to the data which others have accumulated.

EXPERIMENTAL OBSERVATIONS.

The discovery was made by Schäfer and Magnus in 1901 that extracts of the posterior lobe of the pituitary body possess diuretic properties of high degree, the reaction following their injection being a long-continued one, associated with an increase in volume of the kidney. Subsequently Schäfer and Herring pointed out (1906) that the renal arteries are exempt from the general constricting effect exercised by posterior lobe extracts upon other vascular channels and upon unstripped muscle in general. They expressed the belief, however, that the diu-

[1] Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri. Bull. Johns Hopkins Hospital, 1911, vol. xxii, pp. 186-190.

[2] The Pituitary Body and Its Disorders. J. B. Lippincott Co., Philadelphia, 1912.

[3] Über Beziehungen der Hypophyse zum Diabetes Insipidus. Berl. klin. Wchnschr., 1912, vol. xlix, pp. 893-897.

* Delivered at the annual meeting of the Massachusetts Medical Society on June 10, 1913.

resis which they observed was the result of a direct action upon the renal epithelium and that it was independent of the hemodynamic response to the extract, for it persists long after the secondary fall in blood pressure and recession of the kidney to its original size.

In the course of our Baltimore studies in the Hunterian Laboratory (1908-1912) it was noted that after certain experimental manipulations of the canine hypophysis a post-operative polyuria, often of some days' duration and at times reaching a tenfold increase over the normal output, was of frequent occurrence. In 1909 mention was made of these post-operative polyurias in an article by Crowe, Cushing and Homans,[4] dealing specifically with the effects of hypophysial transplantation, and in a subsequent paper by the same co-workers[5] the protocols of fifty examples of experimental hypophysectomy (Series of 1908-9) were given in tabular form.

It may be gathered from these tables that oliguria rather than diuresis followed a total extirpation in the adults, though in the younger animals which survived the loss of the gland for a longer time there was often a transient increase in the amount of urine for a day or two. On the other hand, in the series of partial extirpations in which the posterior and a portion of the anterior lobe were excised, post-operative polyuria was almost always observed, and this was also true of the animals deprived of the posterior lobe alone.

Control observations showed that no polyuria ensued if the operation was carried merely to the point of a free exposure of the gland, stopping short of the final step of actual tissue extirpation. This was construed as an argument against the assumption that the procedure served to excite some predicated diuretic and glycosuric center in the adjacent floor of the third ventricle, rather than that the manipulation of the gland itself provoked the diuresis.

In the series of operations carried out in the succeeding year (1909-10)[5] with Goetsch and Jacobson, although the experiments were reported from the standpoint of the glycosuric rather than the diuretic response, nevertheless the protocols show, in similar fashion, the usual non-appearance of polyuria after total extirpation (Fig. 1), whereas after a posterior lobe removal it was customary to observe a prompt post-operative increase in the urine, which occasionally reached an extraordinary figure for a dog, far in excess of the ingested fluids.

In the operative performances which served to induce hyperglycemia it was observed that the coincident diuretic effect of the procedure was more prolonged than the glycosuric response;

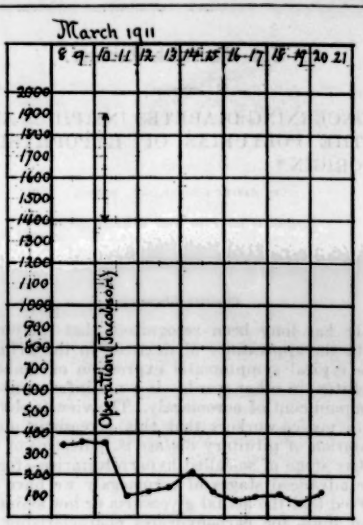


FIG. 1.

Chart showing post-operative oliguria after removal of practically the entire gland.

PROTOCOL. No. 16. Series 1910-11. 7.4 kilo. puppy. March 10: "Near total" hypophysectomy, including posterior lobe. Animal sacrificed for kymographic observations March 21.

and it was doubtless this extreme post-operative polyuria which in our earlier experiments led us to overlook the transient outpouring of sugar, so commonly noted in the second series, in which care was taken to examine the first voided specimen for the presence of a reducing substance.

We do not mean to imply that a diuretic response is invariable, but merely that it is commonly observed, and our further experiences, based on the more recent hypophysectomies conducted by Goetsch, Crowe or Jacobson during the past two years (1910-12), support the view that the clean-cut posterior lobe removals elicit polyuria with the greatest regularity. The accompanying three charts show this post-operative diuresis in its varying degrees: Figure 2, in its extreme form with an immediate polyuria of high degree—almost four liters in the twenty-four hours, succeeded by a quick fall to the normal during the next day or two; Figure 3, in less extreme form, the wave of polyuria being of somewhat longer duration; and Figure 4, in what may be regarded as an average reaction for our posterior lobe removals.

These comparatively transient experimental reactions are chiefly of interest in showing the relation of the glandular manipulations and consequent secretory discharges to diuresis. More enduring polyurias, however, occurred in four of our experiments, all of them being instances in which the hypophysial stalk was purposefully

[4] Hypophysial Transplantation following Total Hypophysectomy. Quart. Jour. Exper. Physiol., 1909, vol. ii, pp. 389-400.

[5] Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri. Bull. Johns Hopkins Hospital, 1911, vol. xxii, pp. 185-190.

[5] Experimental Hypophysectomy. Bull. Johns Hopkins Hosp., 1910, vol. xxi, pp. 127-169. A tentative opinion was expressed that we were dealing solely with an anterior lobe effect—an opinion shown to be erroneous by the observations of the following year.

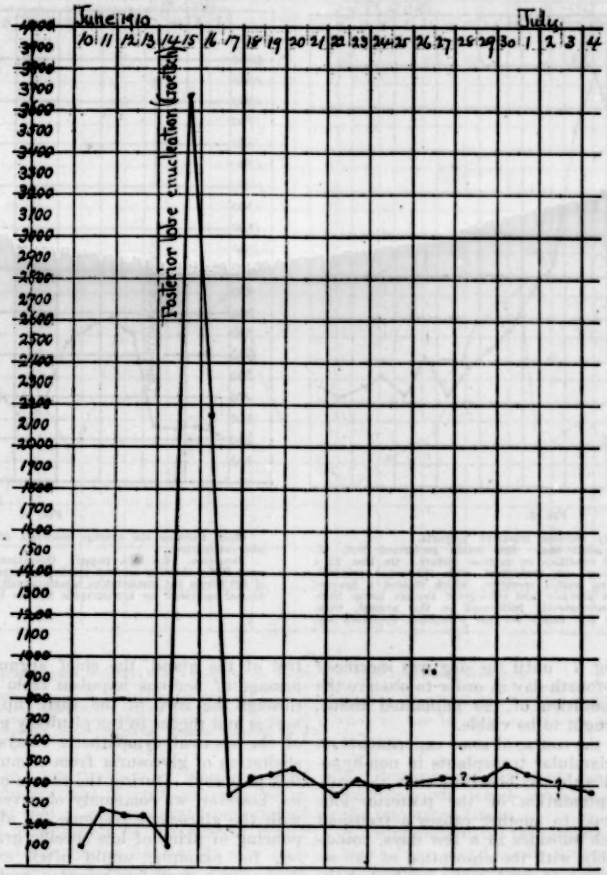


FIG. 2.

Chart showing extreme post-operative polyuria with excretion of 3700 c.c. in the first 24 hours; 2150 c.c. on the second day, with an abrupt fall to nearly the normal level.
PROTOCOL. No. 67. Series 1909-10. Seven kilo., 10 months' puppy. Posterior lobe extirpation.

divided or obstructed, leaving the otherwise intact gland, or a large part of it, in situ. In one of these animals (a 7 kilo. fox terrier which ultimately developed characteristic symptoms of hypopituitarism after a stalk separation combined with a partial lateral removal of the anterior lobe) a polyuria varying from 675 to 1640 c.c. per diem, persisted for six months—a veritable diabetes insipidus of experimental origin (Fig. 5).

Somewhat prolonged reactions were also observed in certain experiments in Crowe's series (1908-9) already referred to, in which we made an immediate subcortical transplant of the excised posterior lobe fragment—a measure having a certain experimental analogy to simple stalk separation, in view of the fact that the chief blood supply of the gland passes into it by way of the infundibular attachment. In two of these animals (*e.g.* Fig. 6) the transplant was removed on the fifteenth and twelfth days respectively, with prompt subsidence of the polyuria. In the third animal, on the other hand, the transplant was not removed and the polyuria

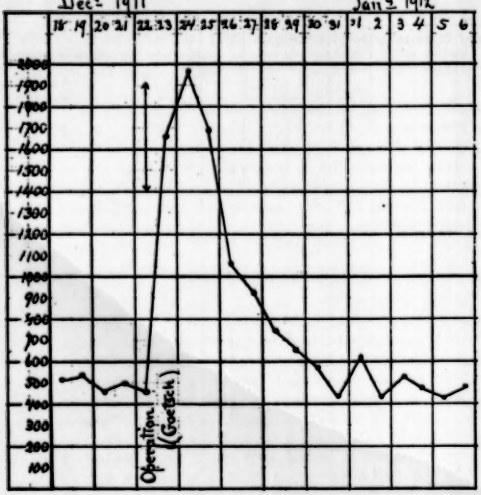


FIG. 3.

Chart showing moderately extreme transient polyuria.

PROTOCOL. 15.5 kilo. adult dog. Eck fistula performed Nov. 10, 1911. Animal kept in good condition on calcium dietary. On Dec. 22 a posterior lobe hyphophysectomy was performed, with the usual polyuria. No sugar present in the first voided specimen, which showed a lowered specific gravity of 1015, the previous and subsequent average being 1040.

A pancreatectomy was subsequently performed on this animal, without glycosuria. Neither the Eck fistula nor the pancreatic operation was followed by polyuria.

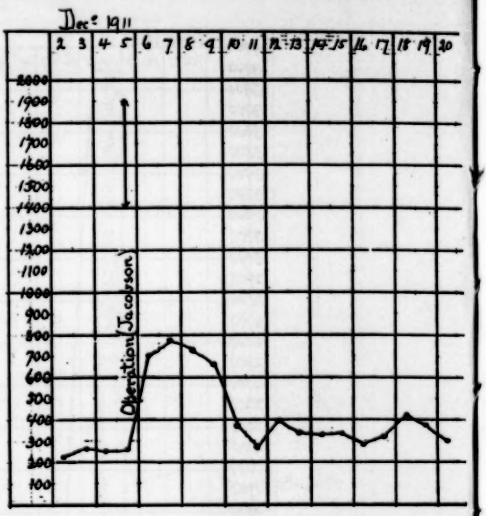


FIG. 4.

Chart showing the average moderate diuretic response after posterior lobe extirpation.

PROTOCOL. 6.5 kilo. puppy. Operation Dec. 5, with sugar (0.6 per cent. D.R.) showing on first specimen, despite the lowered specific gravity of 1012 from the preoperative specific gravity of 1028, due to the polyuria. Animal sacrificed for kymographic Studies Dec. 20.

continued (Fig. 7) until the dog was sacrificed on the twenty-fourth day in order to observe the histological condition of the implanted tissue, which was thought to be viable.

Schäfer,[6] in the course of some experiments on the effect of glandular transplants in non-hypophysectomized animals, observed that the subcutaneous implantation of the posterior lobe from one animal to another causes a transient polyuria, which subsides in a few days, coincident presumably with the absorption of the secretory products contained in the implanted tissue. It would appear, moreover, from certain observations made by Stiles, under Schäfer's direction, that the posterior lobe substance given by mouth increases the urinary output, and thus promises to be of clinical value as a diuretic. This observation also conforms with our own experiences with the oral administration of extracts.

The experimental polyurias heretofore cited have been brought about either by a direct hypophysial insult, by the injection of extracts, or by glandular implantations. An hypophysial diuresis, however, may be elicited in still another way, namely, by nerve stimulation. In some recently recorded observations in collaboration with Weed and Jacobson[7] on the autonomic control of the gland, the chief argument for the passage of nervous impulses from the medulla through the cord to the three upper thoracic nerves and thence to the pituitary gland by way of the cervical sympathetic relays, lay in the elicitation of glycosuria from stimuli applied to this pathway. During the course of these studies, however, we commonly observed, coincident with the glycosuric response, an abundant outpouring of urine of low specific gravity; a rabbit, for example, would often excrete 15 or 20 c.c. in a very few minutes, and at times as much as 150 c.c. in the course of a few hours after stimulation of the superior cervical ganglion. A similar prompt and often excessive diuresis, provoked by the intravenous injection of concentrated cerebrospinal fluid in small amounts, was one of the facts advanced by Goetsch and myself[8] in favor of our contention that the posterior lobe secretion finds its way into the cerebrospinal fluid. These matters are of interest in connection with the subject of emotional or neurogenic polyurias, the further discussion of which at this time would lead us too far afield.

[6] E. A. Schäfer: Die Functionen des Gehirnanhanges. Berner Universitätsschriften, 1911, Heft B.

[7] Further Studies on the Rôle of the Hypophysis in the Metabolism of Carbohydrates. The Autonomic Control of the Pituitary Gland. Bull. Johns Hopkins Hospital, 1913, vol. xxiv, pp. 40-52

[8] Concerning the Secretion of the Infundibular Lobe of the Pituitary Body and Its Presence in the Cerebrospinal Fluid. Amer. Jour. Physiol., 1910, vol. xxvii, pp. 60-96.

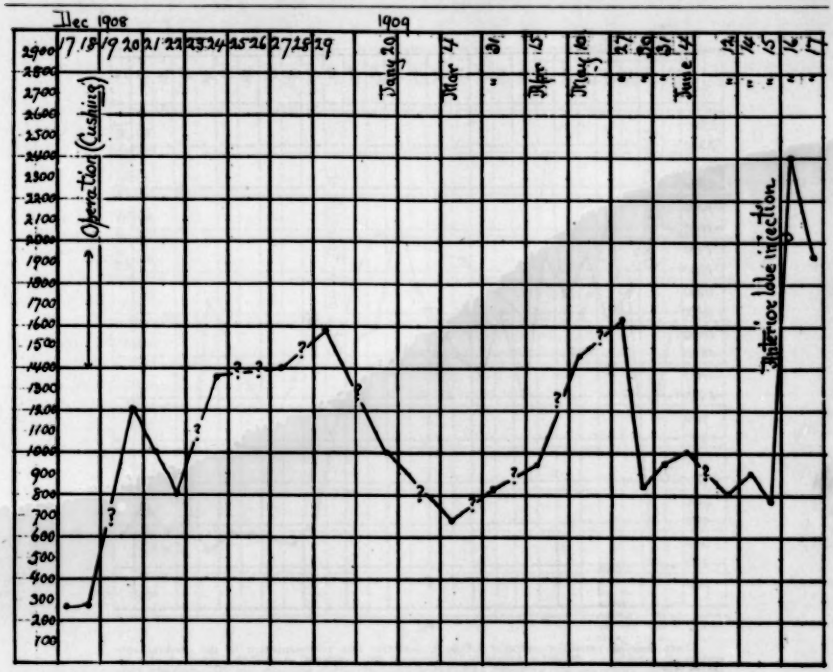


FIG. 5.

Chart showing polyuria prolonged over a period of six months after hypophysial stalk separation.
PROTOCOL. Seven kil. fox-terrier. Dec. 18: Stalk separation with fragmentary anterior lobe removal. Polyuria observed on the six observations during the succeeding ten days and on all occasions when the amount was measured during the succeeding six months, the animal meanwhile acquiring the characteristic adiposity with drowsiness, subnormal temperature and so on, of hypophysial insufficiency. A marked increase of polyuria followed the injection, on June 14, of 10 c.c. of a one per cent. solution of anterior lobe emulsion of bovine gland. Animal sacrificed on June 17.

Despite the suggestiveness of many of these laboratory observations it must, nevertheless be acknowledged that a long-continued polyuria of high degree, comparable to the clinical conditions of diabetes insipidus, has hardly ever been observed, though in a number of cases, after posterior lobe extirpation, animals whose preoperative average output was *circa* 300 c.c., continued to excrete an amount two or three times as great (*circa* 700 c.c.) for the succeeding month or two.

In summarizing the experimental data it may be said that:—

1. The infundibular lobe contains, in addition to the substance capable of glycogenolysis, a chemical body or hormon capable of eliciting diuresis.

2. Under certain operative conditions which entail posterior lobe manipulations there often occurs a diuretic response, and occasionally an extreme polyuria, whereas a temporary diminution in the excreted urine is apt to follow other operative procedures, requiring an equally long anesthetization.

3. Posterior lobe implants may cause a temporary polyuria, which subsides on the removal of the implanted tissue.

4. Stimulation of the autonomic system of nerves to the gland elicits diuresis.

5. Certain operative procedures, such as separation of the infundibular stalk, and occasionally a simple posterior lobe excision, may call forth a somewhat prolonged polyuria.*

* It will be apparent to all that there exists a discrepancy in these diuretic reactions which does not apply to those accompanied by glycosuria. For in the case of the pituitary glycosurias the administration of extracts, direct glandular stimulations, or stimulation of the autonomic nerve supply to the gland, all produce glycosuria, which is recognized as an expression of glandular hyperplasia in clinical cases; whereas experimental extirpation of the gland leads to the reverse condition, namely an increased tolerance for carbohydrates, just as in clinical states an increased sugar tolerance coincides with the glandular insufficiency brought about by injury or compression by a tumor.

In regard to the diuretic response, on the other hand, though the administration of extracts, direct glandular stimulation or stimulation of the autonomic nerve supply are likewise capable of eliciting polyuria, nevertheless the experimental extirpation does not lead to the reverse of polyuria, nor in the clinical states with evident posterior lobe insufficiency do we find a diminished urinary output. On the contrary, active polyuria is not infrequently seen in clinical cases of hypopituitarism associated with a high sugar tolerance.

Thus hypophysial glycosuria and polyuria do not go hand in hand. Explanations for this apparent discrepancy will doubtless be afforded by future studies.

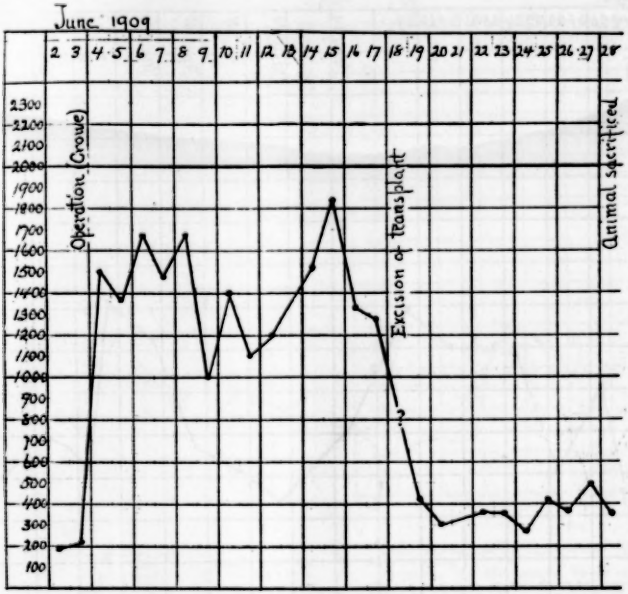


FIG. 6.

Chart showing persistent polyuria following posterior lobe reimplantation in the cerebral subcortex after excision. Polyuria promptly interrupted after excision of the transplant on the fifteenth day.

CLINICAL OBSERVATIONS.

Diabetes insipidus, according to our best known texts, is symptomatically defined as a long-continued disorder characterized by polyuria and polydipsia, with a sugar-free urine of low specific gravity. Two varieties of the malady are commonly recognized: the so-called *idiopathic* form, supposedly originating in the kidneys, is sharply distinguished from a *symptomatic form*, which includes not only the polyurias shown by supposedly psychopathic or hysterical individuals, but also those provoked by some emotional insult, as well as those for which there may be an actual organic neurological basis, such as cerebral trauma, syphilis or tumor.

Meyer, in 1905, considered the idiopathic form to be a primary renal polyuria due to a functional disability of the kidneys which rendered them incapable of secreting urine above a certain low specific gravity, on which basis the ingestion of salt should fail to concentrate the urine and thus should serve to distinguish true diabetes insipidus from the condition brought about by a primary polydipsia. It is held, moreover, that in cases of true diabetes insipidus deprivation of water does not check the polyuria, and some have claimed that the excretion of ingested fluids is more rapid than normal (tachyuria); and this is advanced in support of the view that the disorder is a primary polyuria rather than a primary polydipsia. Others contend that the opposite condition, namely bradyuria, exists, and indeed on etiological grounds the subject is in a state of great confusion.

As will be recalled, Claude Bernard observed, fifty years ago (1854-55), that a transient glycosuria could be provoked by a piqûre at a point in the floor of the fourth ventricle between the origin of the pneumogastric and auditory pairs of nerves, and also that stimulation of a point just anterior to this so-called sugar center would occasionally produce a transient polyuria without the coincident appearance of sugar in the urine. It is natural that many have assumed the existence of some relationship between these experimental glycosuric and diuretic piqûres and certain clinical glycosurias and polyurias, particularly those of a supposedly emotional or neurogenic origin. I do not believe, however, that these conditions, so often precipitated by cerebral trauma, whether psychic or mechanical, were capable of interpretation until it was shown, in collaboration with Weed and Jacobson,[9] that impulses which pass from Bernard's centers by way of the cervical sympathetic are

[9] The Autonomic Control of the Pituitary Gland. Bull. Johns Hopkins Hospital, 1913, vol. xxiv, pp. 40-52.

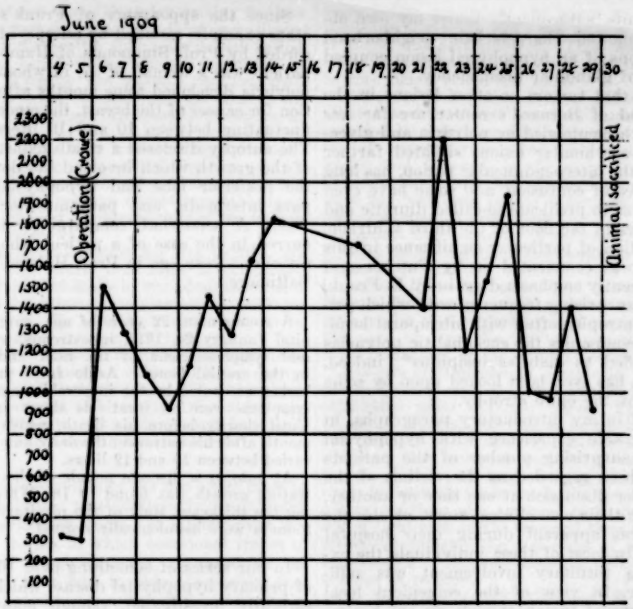


FIG. 7.

Chart showing persistent polyuria after posterior lobe reimplantation in the cerebral subcortex after excision. On all occasions during the twenty-five days following the operation, when the 24-hour amounts were measured they varied between 800 and 2200 c.c.

capable of discharging from the gland a glycogenolytic as well as a diuretic substance.

In our somewhat extensive experience with patients who have received traumatic injuries involving the cranial base, a pronounced and enduring polyuria with polydipsia has been observed in a number of instances; and similar conditions have been reported by others. I have pointed out elsewhere that in basal fractures, even though the fissures may not actually run through the sella turcica, the pituitary body is often the seat of extravasation, which may readily account for the diuretic and glycosuric response occasionally exhibited by the recipients of severe cranial injuries. In one such individual under my care a year ago, there was intense polydipsia, with an average daily output of about 8 liters of sugar-free urine with a low specific gravity, the condition persisting for the six weeks the patient was under observation in the hospital. As was true of the experimental conditions heretofore described, so also in these cases of basilar fracture, when a glycosuric response occurs it is apt to be transient and the presence of sugar may be overlooked unless the first voided specimen is secured, whereas the polyuria is commonly of much longer duration.

Though as eminent an authority as Van Noorden is skeptical of the possibility that a true diabetes may be thus inaugurated by trauma, a number of striking cases have been recorded by Abt and Strauss, by Wieland, by Nothnagel and by Naunyn and Lepine. In view of these authentic clinical examples and in the light of our laboratory experiences, which bring a new element into the discussion, namely the hypophysial secretion, it seems safe to conclude that a suitable injury, affecting the infundibular lobe without obvious lesion of any nerve center, may set up a prolonged polyuria, justifying the designation of diabetes insipidus.

Let us turn from this brief consideration of the traumatic polyurias to those associated with some obvious process of disease.

A review of the clinical histories included in many of the past articles upon diabetes insipidus makes it clear that a large percentage of the patients have shown symptomatic evidence of a lesion involving the base of the brain, a gummatous meningitis affecting the structures in the middle cerebral fossa being a particularly common accompaniment of the disorder. This was true of several of Futcher's cases gathered from the Johns Hopkins Hospital records,[10] and one

[10] T. B. Futcher: Diabetes Insipidus, with the Report of Five Cases. Johns Hopkins Hospital Reports, 1912, vol. x, pp. 197-247.

of his patients, subsequently under my own observation, showed characteristic neighborhood manifestations of an hypophysial lesion coupled with signs of glandular insufficiency.

The fact that tumors or other lesions in the neighborhood of Bernard's center are far less likely to be accompanied by polyuria and glycosuria than are similar lesions situated farther forward in the interpenduncular region, has long been a source of confusion, and some have even gone so far as to predicate so-called diuretic and sugar centers in the floor of the third ventricle. An observation of particular significance in this connection was commented on by Futcher and has been recently emphasized again by E. Frank, namely the surprising frequency with which primary optic atrophy, often with bitemporal hemianopsia, accompanies the encephalitic polyurias often classified as diabetes insipidus*; indeed, the diabetes has even been looked upon by some as a cause of the optic atrophy.

As stated in my introductory paragraphs, in our considerable experience with hypophysial disorders a surprising number of the patients had either been regarded as the victims of the malady under discussion at one time or another, according to their own clinical story, or else the condition was apparent during their hospital residence. In most of these individuals the existence of a pituitary involvement was sufficiently clear, in view of the coincident local manifestations of tumor, though we are becoming familiar enough with these clinical states to recognize the evidences of dispituitarism in the absence of these telltale neighborhood signs.

However, from a critical standpoint unequivocal proof comes only through post-mortem examinations, and of these there have been a sufficient number recorded in the literature, supplemented by the evidence of our own series of cases to make a strong brief.

A number of these cases have been brought together by E. Frank; for example, a tubercle of the infundibulum reported by Hagenbach in 1882, a sarcoma of the hypophysis by Rosenhaupt in 1903, a cystic tumor below the third ventricle by Finkelnburg in 1910, and two examples of gummatous involvement of the infundibular region, both with bitemporal hemianopsia and diabetes insipidus, have been put on record by Oppenheim. Though not certified by autopsy, the situation of the lesion in many other reported cases has been reasonably definite, as was true of Frank's case—a patient who had received a bullet wound involving the pituitary fossa, with subsequent development of diabetes insipidus accompanied by adiposity and other symptoms indicative of a state of hypopituitarism.

Since the appearance of Frank's paper another example, certified by autopsy, has been recorded by Prof. Simmonds of Hamburg.[11] The patient was a woman of 37, in whom an intense polyuria developed some months after an operation for cancer of the breast, the amount of urine fluctuating between 10 and 19 liters per diem. The autopsy disclosed a small metastatic nodule of the growth which involved the dorsum sellae, the posterior lobe and hypophysial stalk, the pars intermedia and pars anterior remaining free. A somewhat comparable condition occurred in the case of a patient who was under my care a year ago in Prof. Halsted's service in Baltimore.

A young man, 22 years of age, entered the hospital January 24, 1912, in extremis, with a recurrent lymphosarcoma of the neck and metastases in the cranial bones. Aside from the local disturbances caused by the inoperable tumor his chief symptoms were an insatiable thirst and polyuria. Until shortly before his death, which occurred a month after his entrance, the daily amount of urine varied between 10 and 12 liters.

At autopsy a discrete nodule of the widely infiltrating growth was found by Dr. Whipple occupying the thickened stalk of the pituitary body. The kidneys were histologically normal.

In our series of something over 100 examples of primary hypophysial disease which have been carefully investigated, though many of them, particularly of the group showing hypophysial insufficiency, have shown polyuria, in six a condition existed which justified the clinical designation of diabetes insipidus, and in five of these individuals this had been one of the various clinical diagnoses advanced before admission. The following curtailed history will serve in illustration:—

On November 23, 1911, J. B., aged 48, entered the Johns Hopkins Hospital, nearly blind, in a stuporous condition and utterly disoriented.

According to the history, he had received, six years before, a frontal injury which had fractured his nose. He subsequently suffered from headaches, occasionally accompanied by nausea and vomiting. He became forgetful, had periods of somnolence and lost his potentio sexualis. He acquired an enormous appetite, and polydipsia with extreme polyuria developed. His vision began to fail, and nine months before his admission a bitemporal hemianopsia was observed. Periods of diplopia followed. Owing to the polyuria several of his many attendants had agreed upon a diagnosis of diabetes insipidus.

On examination the case proved to be a typical one of hypopituitarism with outspoken and characteristic neighborhood symptoms, though the x-ray of the sella showed normal outlines.

The body temperature was usually subnormal, often registering as low as 96; the pulse was slow, often 60; and the respiration also was greatly slowed, with occasional rhythmicities of Cheyne-Stokes type.

* According to E. Frank, Kruse in 1894 reported 35 cases of bitemporal hemianopsia, 7 of them showing diabetes insipidus. Spambock and Steinhaus in 1898 reported 50 cases of hemianopsia, 11 of them showing diabetes insipidus. Oppenheim has recorded one or two cases in which the post-mortem findings showed a gummatous meningitis, the medulla and pons being unaffected by the process.

[11] M. Simmonds: Hypophysis und Diabetes Insipidus. Münch. med. Wchnschr., 1913, vol. lx, pp. 127-128.

Somnolence was one of the most striking features, and as there were frequent periods of incontinence it was not always possible during his drowsy periods to collect the full 24-hours urinary excretion. At other times, when he was wakeful and responsive and the urine could be measured, the amount was always over 5 liters, not infrequently exceeding the ingested fluids.

Though the urine from time to time contained a trace of albumen and an occasional hyaline cast was present, there was no clinical evidence of arteriosclerosis, the blood pressure almost invariably registered below 100, and functional tests of the kidneys gave normal reactions.

He was under observation for five months, and during this time efforts were made to compensate for his glandular deficiency by the administration of extracts and by pituitary implantations, with but variable success. He ultimately died from an inhalation pneumonia on April 29, 1912.

The autopsy disclosed an interpeduncular cystic tumor—the usual squamous epithelial lesion derived from an anlage of Rathke's pouch. The hypophysis was greatly flattened and contained but a few normal cellular elements. The kidneys were histologically normal. There was no arteriosclerosis.

This is a fair example of the five other cases in which the polyuria was sufficiently pronounced to justify particular study. It is, moreover, the only one of the six in which occasional traces of albumen and renal elements appeared in the urine, and I may add in this connection that none of the patients showed evidences of arteriosclerotic changes, that a persistently low blood pressure was commonly observed, and that standard functional tests of the kidneys gave normal reactions in the three patients in whom these tests were made.

Suggestive as the foregoing examples of spontaneous polyuria prove to be, there is still another case in the clinical series which is even more illuminating. In this patient an enduring polyuria was inaugurated by a transphenoidal hypophysial operation—an experience which is somewhat comparable, as will be observed, to the experimental consequences of hypophysial manipulations discussed in the first section of this paper. The story deserves a somewhat detailed recital.

Pituitary tumor with blindness from primary optic atrophy. Symptoms of hypopituitarism. Sellar decompression, provoking a post-operative diabetes insipidus.

Mrs. F. L., 40 years of age, entered the J. H. H., Oct. 23, 1911, with the complaint of blindness and headaches.

There was nothing noteworthy in her family or past personal history, though from childhood she had suffered more or less from cephalalgia. Her adolescence was somewhat tardy, for her catamenia, though subsequently regular, did not begin until she was 16. She married at 20, and raised a family of six healthy children, the eldest 18 years, the youngest three months of age. Four other pregnancies miscarried.

Present Illness. After her fifth confinement, four years before admission, she began to suffer from throbbing headaches, and a few months later failure of vision was first observed. This condition progressed, and in the course of the next two years she became almost completely blind.

Subsequently her sense of taste and smell became affected, and there were occasional uncinate seizures preceded by a dreamy state with an olfactory aura (as of something scorched, as bread, rubber or meat), and followed, in the more severe attacks, by a convulsion with loss of consciousness. Of late there had been some failure of memory with depression; also marked drowsiness.

Physical Examination. A well-nourished woman, 5 feet 6 inches in height, and weighing 150 pounds. Visceral (abdominal, thoracic, etc.) examination negative. Urine normal. Blood examination (including Wassermann test) negative except for an eosinophilia of 4 per cent.; blood pressure averaged 110 mm. of Hg. No positive neurological signs aside from those of the pituitary neighborhood.

Analysis of Hypophysial Symptoms. (1) *Neighborhood:* The cranial x-ray disclosed completely obliterated sellar outlines. *Eyes:* Pupils dilated (7 mm.); sluggish reaction to bright light. Bilateral primary optic atrophy. Blindness so nearly complete that accurate perimetry was precluded though shadows of large moving objects were at times indistinctly made out in the nasal fields. Pupillary reactions also appeared to be better from a ray of light cast on the temporal than on the nasal retina—presumably the last stage of a bitemporal hemianopsia. Complete anosmia. Uncinate gyrus seizures as recorded.

(2) *General Pressure Symptoms.* Headaches, extreme and paroxysmal and occasionally accompanied by nausea and vomiting. Some evidence of new tissue formation in the atrophic nerve heads, with obscuration of the margins and of the lamina cribosa.

(3) *Glandular.* No skeletal change: no especial adiposity; no cutaneous change. Moderate hypotrichosis. Sugar assimilation limit 200 grams of levulose. Constipation marked. No polyuria or polydipsia. Pulse, temperature and blood pressure tended to be subnormal. Marked drowsiness. Other ductless glands negative.

November 1. Sellar decompression by transphenoidal route. The thin, bulging floor of the sella was easily removed in one large scale. The dura was incised, but instead of the expected soft struma a dense tissue mass was encountered. This was taken to be the flattened gland interposed between the operative field and the tumor. (A minute fragment of the tissue, removed for examination, subsequently showed flattened anterior lobe cells with a great increase of interstitial tissue.)

There were no surgical complications: no subsequent nasal discharge.

On recovering from the operation the patient exhibited a degree of thirst, which proved to be insatiable by the usual ward delivery of water. Not, however, until several days later did the associated polyuria become so marked as to attract especial attention (Fig. 8). Unfortunately there had been no test for sugar on the first specimen voided after the operation, though, according to the ward routine for all suspected hypophysial cases, the 24-hour amounts were recorded, except on three days (November 13 to 15 inclusive) when some specimens were lost. After November 16 the fluid intake and output were both measured.

As the poor woman's pressure headaches continued unabated, recourse was had, a month later, to a palliative subtemporal decompression.

December 4. Right subtemporal decompression. A tense temporal lobe was disclosed. Uncomplicated healing. There was prompt and permanent relief from headaches but the polyuria, anosmia and subjective olfactory seizures continued as before and, as was anticipated, no improvement occurred in vision.

Observation on the Polyuria. (Fig. 8.) As stated, the sellar decompression of November 1 served to inaugurate an active polydipsia with polyuria. The primary wave of polyuria shown in the accompanying chart persisted for three months, the 24-hour amount of urine reaching nearly 12 liters at the crest of the wave. The polydipsia was proportionate, and though from the plotted curve it would appear that the average fluid intake was less than the renal output, the ingested water only was measured. There were, however, many days when the excretion unquestionably exceeded the ingested fluids. However, her weight during these three months varied but slightly, at the lowest being 147.5 pounds, and on February 1, at the end of the primary period of extreme polyuria shown in the chart it was again at 150, her weight on admission.

Her thirst was unquenchable and was most distressing to observe. A two-liter jar of water which siphoned to her mouth, was kept at the head of the bed, and the poor blind creature almost continuously sucked at the tube, except during her sleeping hours. It was often necessary to refill the jar every few hours.

The chart shows that only on the day of the second operation (December 4) was there a marked break in the polyuria, owing doubtless to a diminished intake and possibly, too, to the fact that some specimens may have been lost in the operating room.

At no time were there any renal elements, sugar or albumin, acetone or diacetic acid in the urine.

Functional tests of the kidneys at the height of the polyuria showed no alteration from the normal. The phenolsulphonephthalein test for tubular function showed a positive reaction in 4½ minutes, and 47 per cent. was returned in the first hour. Tests with potassium iodide, with carbol-fuchsin and with lactose all gave normal results, and the glycosuric reaction to phloridzen was likewise normal.

The specific gravity of the urine throughout the three months averaged 1005 to 1006. Practically the lowest registration, namely 1002.5, occurred on the first two days following the inauguration of a period of salt-free diet, though at this time the polyuria was not at its extreme height. Attempts to increase the urinary concentration by administering NaCl were obscured, owing to the impossibility of keeping the ingested fluids low enough for the urine to be appreciably affected by any reasonable amount of salt.

On February 1, sugar and salt were withdrawn from the dietary and the liquids were limited to 2200 c.c., with resultant rise in the specific gravity; on the first two days the excretion exceeded the ingested fluids. The restriction of liquids, however, caused so much distress that prolonged observations were unjustifiable, and at this time, moreover, there was an evident spontaneous lowering of the degree of polyuria which had preceded.

She remained in the hospital through the month of February, during which time the polydipsia moderated considerably. On some occasions the 24-hour amount of urine fell almost to normal limits. She was discharged on February 24, 1912, four months after her admission. Since her discharge frequent reports of her condition have been received through her physician. There has been an occasional slight wave of thirst with polyuria amounting to three or four liters in the 24 hours, but for the most part the amount ranges around the normal.

She continues (April, 1913) to be free from her former pressure headaches, though her uncinate seizures still recur and her blindness and drowsiness remain about as before.

'Tis an ill wind, indeed, that blows no benefits, and the experience with this unfortunate patient, who presented a therapeutic problem for which we have as yet no satisfactory surgical or other solution—the presence of an interpeduncular growth, which flattens and functionally obstructs the underlying pituitary gland—at least has added something to our knowledge of an obscure malady.

Though it may not be clear in just what way the manipulation of the compressed gland served to inaugurate the polyuria, the experience offers a strong argument in favor of the view that an actual disturbance of the pituitary body itself, rather than the stimulation of some predicated diuretic center in the remote third ventricle surmounting the growth, was the inciting cause of a condition worthy of the designation of diabetes insipidus.

It may be said in conclusion that certain clinical observations, coupled with the experimental data which have been assembled, suggest not only that,

The emotional polyurias are in all likelihood the expression of a neurogenic discharge of hypophysial secretion, but also that,

The clinical polyurias of longer duration are in many instances merely the symptomatic expression of an internal secretory disturbance brought about by injury or disease involving the hypophysial neighborhood.

Hence, whether or not there actually proves to be a form of polyuria of primary renal origin, our present conceptions of so-called diabetes insipidus need to be recast, with especial reference to the factor of the secretory activity of the pituitary body and particularly of its posterior lobe.

Note.—Since the preparation of this paper an interesting communication under the title "Diabète insipide avec infantilisme," made by Peirre Marie and Boutier before the Société de Neurologie de Paris, has been published in the Revue Neurologique, 1913, vol. xxi, pp. 555-560. The case in all likelihood was one of infantilism associated with an hypophysial lesion, though no radiographic observations were made.

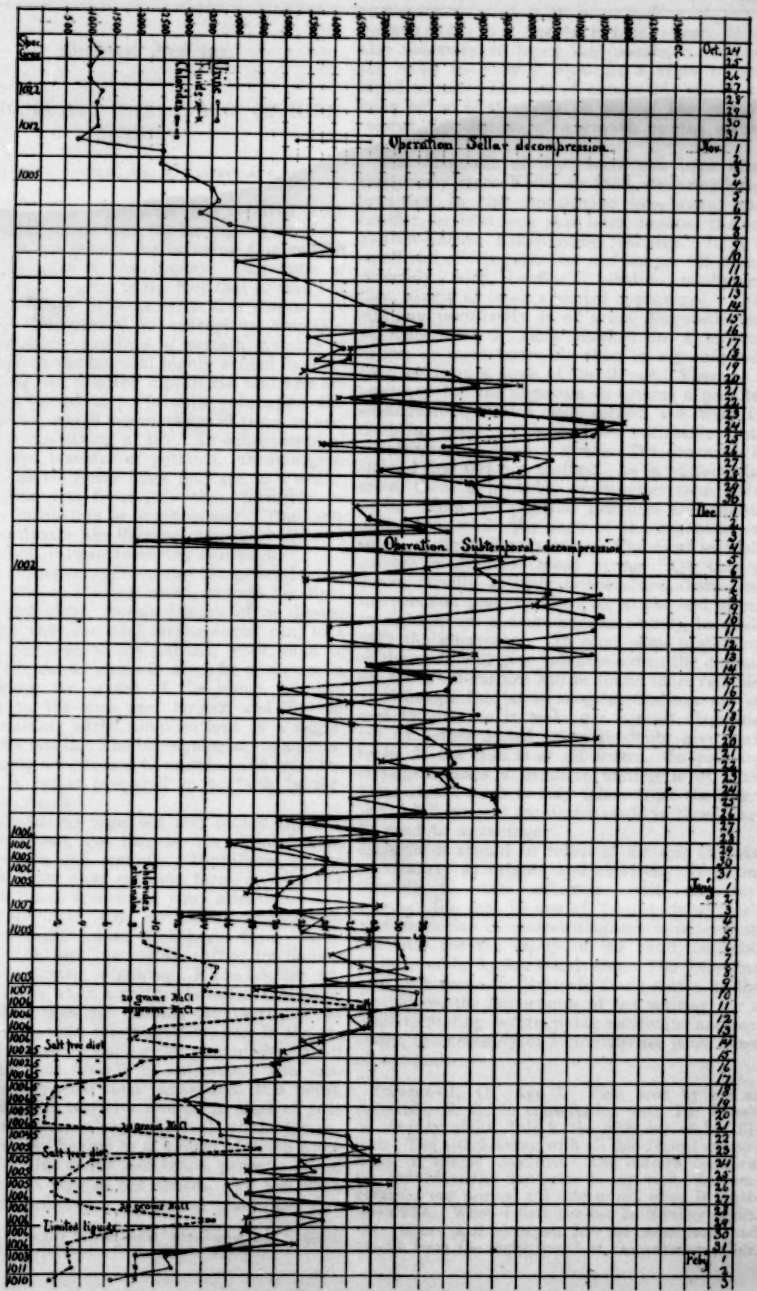

Operation Sellar decompression
Operation Subtemporal decompression
Chlorides eliminated
20 grams NaCl
30 grams NaCl
Salt free diet
Limited liquids

FIG. 8.

Original Articles.

DIAGNOSIS AND TREATMENT OF DIPHTHERIA.*

BY JOSEPH B. GREENE, M.A., M.D., ASHEVILLE, N. C.

THE fact that diphtheria has received such scant consideration from the laryngologists of the country is my reason for bringing this subject to the attention of this society. One cause of this apparent neglect is the fact that in many of our large cities patients with this disease are promptly transferred to contagious hospitals. This procedure develops a certain number of physicians in the hospital highly skilled in diagnosticating and treating diphtheria, and who are especially skilled in performing intubation and tracheotomy, which measures are at times so necessary for the saving of life. In consequence of this prompt transfer of patients, laryngologists of the cities see fewer cases, and are, as a result, called upon less frequently than formerly, to perform intubation or tracheotomy. The early use of antitoxin has likewise materially reduced the number of cases requiring operation.

In our smaller communities the general practitioner still, to a large extent, attends his diphtheria cases alone, though I know of no disease where the internist and laryngologist can, to a better advantage to the patient, work hand in hand. The throat man can often be of service in determining the extent of the lesion, particularly as to the nose and larynx, and likewise diagnosticating early complications as a beginning otitis media. The laryngologist, on account of his being accustomed to examine and treat the larynx, is better prepared to perform intubation when needed.

The diphtheria organism may attack any mucous membrane, and likewise the abraded skin, as in eczema and wounds. Diphtheria of the pharynx is the most common form, and the one to which I shall first direct your attention. Unfortunately there is no method of diagnosticating, with positiveness, diphtheria from "ordinary sore throat," so called, except by finding the characteristic organism, Klebs-Loeffler bacillus. Even when a culture is taken, one negative finding does not exclude diphtheria, if the clinical symptoms are suggestive, and in the absence of a positive finding the patient should not be denied the benefit of antitoxin. The case which is reported later illustrates this point. The cause of a negative finding in cases of true diphtheria is not always the fault of the laboratory. It may be due to a failure to touch accurately the edge of the membrane, perhaps due to an imperfect view of the throat. One has often to contend against a struggling child, and frequently, too, in a poorly lighted room. It is also necessary to bring the inoculated part of the swab in contact with the surface of the blood serum. The use of antiseptics within an hour or so of the time of taking the culture lessens the chances of a growth on the serum tube.

The diagnosis of diphtheria has been relatively easy since Klebs, in 1883, discovered the organism in the diphtheritic membrane, and Loeffler, in 1884, one year later, isolated the organism—hence Klebs-Loeffler bacillus. It is a small rod of irregular size and shape. It stains unevenly with Loeffler's alkaline methylene blue, giving at times a beaded appearance. This staining peculiarity is of great diagnostic importance, and is more marked in a culture twelve or more hours old than in a young culture, or from a swab of the throat. There is a tendency for the organism to assume a parallel arrangement, which has served me well in doubtful cases. This is more noticeable from a culture than from a swab. The organism is stained by Gram's method. As a differential stain, there is probably none better than Neisser's. Here the peculiar granules are stained dark blue, while the body of the organism assumes a light brown color. The most suitable culture medium is blood serum. On this it grows rapidly at body temperature, distancing the common pus organism, so, at the end of six or eight hours a diagnosis can usually be made with the microscope. In some cases a staining of the swab will give valuable aid in the diagnosis, though a culture will be found more reliable.

Although the bacteriological findings are of first importance in making a correct diagnosis, but as before stated, when in doubt give antitoxin, if the case is at all severe. In primary laryngeal cases a negative finding is of little value if the swab is only taken from the pharynx. A laryngeal applicator could in these cases be used to advantage.

Cultures should be taken of all sore throats, particularly in infants and children. It is impossible to state otherwise with accuracy, whether the case be one of "simple tonsillitis" or diphtheria. A correct diagnosis is important, not only for the safety of the child, but also from a public health standpoint. The following case will serve to illustrate two points: in the first place, the importance of not waiting for a positive finding before giving antitoxin; and secondly, the necessity of administering large doses of antitoxin:—

Patient—L. C. Age 7. First seen by me at Asheville, N. C., in consultation with Dr. Powell on Sunday night, July 2, the fifth day of her illness. The attack began with all the clinical appearances of simple tonsillitis. The culture negative. On Saturday, the day prior to my visit, the temperature was normal till 6.30 p. m., when it registered 99.5. When I first saw her on Sunday night, the picture had changed, for the membrane had spread from the right tonsil to the anterior pillar,

* Presented as candidate's thesis at the nineteenth annual meeting of the American Laryngological, Rhinological and Otological Society, held at Washington, D. C., May 9-10, 1912.

of the same side. A patch was also seen on the left tonsil. Temperature 103.5. Neck very much swollen, and head extended to facilitate breathing. Patient showed signs of severe toxemia. Administered at once 10,000 units of antitoxin. The following morning patient no better; given 20,000 units of antitoxin. That afternoon patient still dangerously ill. Culture positive for the first time. Seen with Dr. Dunn, and 40,000 units given. The next morning seen with Dr. Briggs, patient slightly better, but still dangerously ill. Repeated 40,000 units. That afternoon patient much better, and only 20,000 units. Small doses of antitoxin were continued for a few days, till all signs of membrane had disappeared. She was given, during her illness, 170,000 units of antitoxin. Her recovery was complete and uneventful, except for some paralysis of her palate, and eye-muscles. These had all disappeared at the end of nine weeks. Her pulse continued rapid for some time, which required absolute quiet. Stimulants were given as indicated.

Hoffman's bacillus closely resembles the diphtheria bacillus, though it is somewhat shorter and thicker. It does not show the polar bodies by Neisser, nor is it pathogenic to guinea-pigs.

Bacillus Xerosis,[1] as recently described, cannot be distinguished with certainty from Klebs-Loeffler bacillus. It is said that B. Xerosis forms acid from saccharose, not from dextrin; while B. diphtheria forms acid from dextrin, and not from saccharose. However, the final test in differentiating B. diphtheria from all so-called "pseudo diphtheria" bacilli is by animal inoculation. This slow method of differentiation can only be of use from a public health standpoint.

The clinical diagnosis of diphtheria is often difficult. It is particularly so in mild cases affecting the tonsils, and also where the larynx is primarily affected. Temperature is of little value in making a diagnosis of diphtheria. It is frequently not high, ranging from 99° to 102° F. Strange as it may seem, the temperature may be normal in cases of severe toxemia. A sudden rise in temperature suggests a beginning otitis media, or pneumonia. The pulse, like the temperature, is a poor guide in the diagnosis, for it may vary from a slow pulse to a very rapid one. The extremes, as a rule, are of serious prognostic significance. The volume of the pulse soon becomes small owing to a myocarditis. The depression is great in cases of severe toxemia, though in mild cases this need not be the case. It is too often said by the attending physician, "The patient is not sick enough for diphtheria." Follicular tonsillitis usually makes one seem sicker than true diphtheria. The temperature is usually higher. Before the appearance of the membrane, there may be observed a peculiar plum color of the mucous membrane of the pharynx, particularly evident on the soft palate. There may be considerable edema present. Valuable time in the treatment may be saved by this early diagnosis. The membrane is at first of a grayish white color, though not unlike the membrane due to the pus organism. The cases of septic sore throat which occurred in Boston[2] from the milk epidemic of 1911 had some clinical resemblances to diphtheria. The bacteriology was different. The situation of the membrane is of great diagnostic importance. If found on the pillars, or any part of the pharynx other than the faucial tonsils, our suspicions should at once be aroused that we are not dealing with a case of simple sore throat. The odor in septic diphtheria may be foul. There is usually seen a peculiar red margin at the edge of the membrane, which has served me well for diagnosis in certain cases. The use of violence in removing the membrane to see if bleeding takes place is of little value, and is unjustifiable. Mucus in the throat may be gently swabbed away without harm to the patient. Albumen in the urine is suggestive of diphtheria. Early glandular involvement is a suspicious symptom of diphtheria, though the Boston milk epidemic of 1911 showed this symptom very frequently. There may be edema of the neck, which may extend down over the chest. This is strong evidence of diphtheria, and indicates a severe type of the disease. These are cases requiring large dosage of antitoxin.

Nasal diphtheria is the most contagious form, and from a public health standpoint, is of the first importance. The membrane may be in the nose proper, or the naso-pharnyx. In the latter situation, that is, in the naso-pharynx, the symptoms are more severe, owing to a rapid absorption through a bountiful lymph drainage. On account of the difficulty of inspecting the naso-pharynx of very young children, the diagnosis of this type of diphtheria must usually be made from the symptoms, and finding the characteristic organism. There is noted a serous or serosanguinous discharge from the nose, which may excoriate the upper lip. When the membrane is in the nose one can usually see the membrane on rhinoscopic examination. Frequently the membrane may be confined to one side of the nose, and then you get a one-sided discharge, which simulates a foreign body in the nose. There may be nasal hemorrhage of some severity. The patient, if old enough, complains of a stopped-up feeling of the nose. The symptoms may persist for a long time, and may be so mild as not to be suspected as being diphtheria. As before stated, these cases are very contagious and become a menace to public health.

From autopsies performed by Councilman and Mallory at the South Department, Boston, it is probable that the sinuses of the nose, particularly the antrum and sphenoid, harbor the diphtheria organism for a long time. There may be an extension of the membrane from the nose to the ear, pharynx, larynx, or eye.

Diphtheria of the eye is a serious condition, particularly as to sight, and frequently results from an extension through the tear duct, though it may be due to accidental inoculation from other regions.

When the larynx is primarily involved, it is difficult of diagnosis, especially in very young

children. On account of the difficulty of inspecting the larynx in children by means of the indirect method, the laryngeal specula as devised by Mosher and Jackson, are useful for direct laryngoscopy. The symptoms of laryngeal obstruction from a diphtheritic process, come on slowly, and in this respect differ from a foreign body, and also spasmodic croup. At first there is hoarseness, followed by aphonia, evidenced in infants on attempting to cry. In a few hours this obstruction becomes greater, and we get signs of the patient breathing through a stenosed larynx, such as stridor, both inspiratory and expiratory in character, rigidity of the sterno-cleidomastoid muscles and retraction of the abdominal muscles, and supraclavicular spaces. There may be pallor instead of cyanosis, a fact which is easily overlooked when the question of giving relief by operative interference is considered. When the obstruction is lower down, as a foreign body in the bronchus, or bronchial glands, there is more expiratory stridor. The auscultory signs of the chest in cases of foreign body, are the absence of normal respiratory sounds over the area where the entrance of air is obstructed. When the obstruction is high up, as in retro-pharyngeal abscess, the stridor is more inspiratory in character. The diagnosis of retro-pharyngeal abscess can best be made by palpation with the index finger.

Catarrhal spasm of the larynx, or spasmodic croup, as it is sometimes called, may be mistaken for laryngeal diphtheria, but the former usually comes on suddenly at night, and there may be a history of previous attacks. The temperature is usually lower in spasmodic croup, though too much reliance must not be placed on this point in the diagnosis. Improvement usually follows in a few hours after appropriate treatment; not the case in laryngeal diphtheria unless relieved by operation.

Acute laryngitis in infants simulates diphtheria very closely. The constitutional symptoms are usually milder, except the temperature, which may be higher than in laryngeal diphtheria. Aphonia is not so marked. If there be a patch on the pharynx, glandular enlargement of the neck, or albumen in the urine, think of diphtheria. Direct laryngoscopy should be practised in all doubtful cases.

Pneumonia resembles laryngeal diphtheria in the marked dyspnea, but there is usually no stridor. There can be elicited the physical signs of pneumonia, and probably a leucocytosis.

Jackson[3] has described a laryngo-tracheitis due to the influenza bacillus, which can only be differentiated from diphtheria by direct inspection. There is no membrane nor Klebs-Loeffler bacilli present.

In distinguishing the laryngeal symptoms of measles, we should look for Koplik's spots, which appear before the skin rash. The eye and nose symptoms appear early in measles. A culture from the throat should, of course, be taken.

Diphtheria may be a complication of measles. In fact, it complicates this disease more frequently than any other.[4] Early laryngeal symptoms point to measles alone, while a later stenosis of the larynx in measles suggests diphtheria as a complication.

The diagnosis of diphtheria from scarlet fever, when a membrane is present, can only be made by the microscope. The general redness of the fauces, the appearance of the tongue, and perhaps the skin rash in scarlet fever may assist in the clinical diagnosis. One should be on the lookout for a complication of scarlet fever with diphtheria.

Vincent's angina has been very clearly and fully described by Place.[5] It may be mistaken for diphtheria. It is more chronic in nature, and usually shows a dirty patch on the tonsil, or elsewhere in the mouth. Place says, "It differs from diphtheria in being always an ulcero-membranous process, which diphtheria never is primarily." The finding of the B. Fusiformis and the Spirrilum gracillis confirms the clinical diagnosis. Syphilis of the nose and pharynx may simulate diphtheria, but with the finding of the specific spirochete and the Wassermann reaction, the diagnostic difficulties should be less.

Inherited syphilis of the nose in a young child may be mistaken for diphtheria, but there are usually other evidences of syphilis. It is usually less acute in character, and there is the absence of Klebs-Loeffler bacilli.

Secondary syphilis of the throat is characterized by a thin layer of necrotic epithelia with a well defined border. There is usually less constitutional involvement, though there may be fever with syphilis.

Later forms of syphilis of the throat are characterized by a deep ulcer, with a very much inflamed border. The appearance is out of all proportion to the symptoms, for there is usually little pain on swallowing. With the Wassermann reaction in syphilis and the finding of Klebs-Loeffler bacilli in diphtheria, there should not long exist doubt in the diagnosis of syphilis and diphtheria.

Traumatic exudates from operative procedures, as tonsillectomy, simulate diphtheria. A close inspection and a history of the case should remove all doubt. It should be remembered, however, that Klebs-Loeffler bacilli may be a complication of an operative procedure, so if there exist constitutional symptoms out of proportion to the appearance of the wound, a culture should be taken.

Leptothrix-mycosis may be distinguished from diphtheria by its chronic course, often without symptoms.

The projections on the tonsil are conical and show a growth of the leptothrix fungus.

In all lesions simulating diphtheria, the microscope should be promptly used in clearing the diagnosis.

Preventive Treatment. Patients should, if possible, be sent to an infectious hospital. In lieu of this, isolation and quarantine should be

rigidly enforced at home. Immunizing doses of antitoxin, 500 to 2,000 units, depending somewhat on the age, should be administered to all exposed children. Adults should be carefully watched as to their noses and throats.

There is hardly a question but that epidemics of diphtheria are kept up by "carriers," so, as a preventive measure, these cases should be sought for and isolated. Seligmann[6] lays stress on this point, and also speaks of nasal diphtheria being liable to convey the infection for a long period of time.

Diseased tonsils and adenoids are especially liable to harbor the organism. The writer,[7] in 1908, was the first to remove diseased tonsils and adenoids for the purpose of getting rid of the diphtheria organism in a "carrier," and soon the patient was rid of the infection. Since that time this method has been frequently practised in certain localities with marked success. It would not be advisable to practice this method as a routine procedure, but is suitable for certain selected cases. An immunizing dose of antitoxin should be given at the time of the tonsil operation, to prevent infection of the wound with Klebs-Loeffler bacilli. Schectz, a Danish physician, some years ago, recommended spraying the throat with a living culture of staphylococcus pyogenes aureus, to rid the throat of diphtheria infection. Page,[8] Lorenz and Ravenell[9] have practised the overriding of diphtheria throats with staphylococcus pyogenes aureus, and report good results. As the two organisms are found growing side by side in throats, and can likewise be grown together in culture tubes, it is not easy to understand the reason for the disappearance of diphtheria organism by this method of treatment. It would seem as if there is an element of danger in a spray of living staphylococci. Inasmuch as "carriers" have, as a rule, abnormal throats or noses, it would seem more rational to treat these abnormalities with a hope of ridding the patient of diphtheria bacilli. Place tells me of a "carrier" who got rid of his infection when a foreign body was removed from the nose. At least two negative cultures, and probably three, should be required before release from isolation. The writer saw last year, while working at the South Department, Boston, a child who had been in the institution more than a year awaiting the required negative cultures. Diphtheria vaccines[10] have been used with some success in ridding "carriers" of diphtheria bacilli.

Serum Therapy. Under treatment, I shall consider first, antitoxin, for it is by far the most important. It is an absolute specific when given in time and in sufficient dosage. Of the 241 doctors, nurses and attendants contracting diphtheria at the South Department, Boston, not one succumbed. It is not necessary to consume your time in offering proof of the efficiency of antitoxin in this formerly much dreaded disease. I assume that every member of this society is a believer in the life-saving value of antitoxin. It should be given early, and in sufficient dosage to produce the desired effect. The size of the initial dose should vary from 5,000 to 50,000 antitoxin units, and more in the malignant cases which have existed for some time. As McCollom rightly says, the age, over two years, has nothing to do with the size of the dosage. It is a chemical reaction, and not a physiological one, so there is no reason to doubt but that a young child may have as many toxin units as a fully grown man. They certainly have a lessened resistance on account of their tender years. The antitoxin is, in no sense, an antiseptic, but in neutralizing the toxin, it gives the leucocytes and other protective forces a chance to get in their work.

Text-books have been very inadequate in the size of the dosage recommended. Tyson, in his "Practice of Medicine," recommends 1,000 to 2,000 units, depending upon the severity of the attack! Ballenger recommends 2,000 to 3,000 units in what he terms ordinary diphtheria; 3,000 to 5,000 units in laryngeal cases. McCollom, in his classical paper on "Diphtheria" in Osler's Modern Medicine, says: "If there is a very extensive membrane when the patient is seen for the first time, 8,000 to 10,000 units should be given, repeated every four or six hours, until the characteristic effect of the serum is produced, namely, the shriveling of the membrane, diminution of the nasal discharge, a correction of the fetid odor, and general improvement."

Since the above was written, the dosage at the South Department, Boston, has been increased, and the mortality likewise reduced. It may be of interest to state that the mortality at this large infectious hospital, from 1888 to 1894, the year of the introduction of antitoxin, was 43.2%. From 1895 to 1904, inclusive, it was 11.48%. For the year 1912 it was 7.6%, including laryngeal and moribund cases. The greatest reduction was in the very severe cases where massive doses of antitoxin were administered.

Both nasal and laryngeal diphtheria require large doses of antitoxin. Abraham Levinson[11] says that the curative dose in nasal and laryngeal cases should not be less than 25,000 units. Diphtheria of the eye, on account of the danger to sight, requires large doses of antitoxin. It is far safer to give larger doses than is required to neutralize the toxin, which is so destructive to the vital cells, than to leave a portion free to exert its deadly effect on the tissues of the body. There is no way of estimating, with accuracy, the amount of toxin requiring neutralization, but the amount depends somewhat upon the duration of the illness, the extent of the surface involved, and lastly, the virulence of the organism. A mild case of pharyngeal diphtheria should receive, as a single dose, from 5,000 to 10,000 antitoxin units; a moderately severe case of several days' standing should receive 20,000 to 25,000 units, and a severe case, 50,000, and more if the case seems desperate. The dose should be repeated at intervals of six or eight hours till

marked improvement takes place. The size of the dose can soon be reduced, and smaller doses continued until the membrane has completely disappeared. Place strongly advises getting all the required antitoxin in during the first three days of the treatment, even if 500,000 units are required. This dosage, of course, only refers to the desperately ill cases.

Ehrlich says two poisons are produced by the growth and multiplication of the diphtheria bacillus. To one he gives the name of toxin, and to the other toxon. To the former he attributes the early acute symptoms, and to the latter, the toxon element, he attributes the late paralyses. The affinity is stronger between the toxin and antitoxin than between the toxon and the antitoxin, hence the importance of having a surplus of antitoxin to neutralize the toxon element after the toxin has been chemically disposed of.

There is what is termed a precocious form of palatal palsy occurring about the fifth day of the disease. This is not so serious as the late forms, occurring usually within the first three weeks of the illness, but the early form is somewhat of an index to the severity of the illness.

Rosenau[12] and Anderson have shown by animal experimentation the uselessness of giving antitoxin with a hope of influencing the paralyses occurring late in the disease.

My favorite situation for injection of the antitoxin is in the loose areolar tissue of the back, near the angle of the scapula. This region is relatively free from the sensory nerves, is protected from vital parts, and lastly, the operation is not witnessed by the patient. This last point is quite important from a psychic standpoint. The site selected should be sterilized, and the situation should be changed from time to time, as there is usually a local reaction.

Fritz Meyer[13] strongly recommends intravenous injection of antitoxin in serious cases—says much time is saved in the absorption. Eckert,[14] Hoesch[15] and others advise intramuscular injection as being more rapid of absorption than the subcutaneous method.

DANGER OF ANTITOXIN.

The danger of antitoxin has been grossly exaggerated. That a few deaths have taken place following its administration cannot be denied, but they are too infrequent to be seriously considered in view of the dangers of diphtheria when left untreated by antitoxin.

Park[16] says that, "In over 100,000 patients immunized (New York) since the introduction of antitoxin, there has been but one known fatality due to the serum injected. This child suffered from status lymphaticus and died shortly after an injection of 1000 units." Place says that more than 100,000 doses of antitoxin have been administered to over 40,000 patients at the South Department, without a dangerous symptom attributable to antitoxin.

The work of Theobald Smith, followed by the work of Otto, Rosenau and Anderson[17] proved that horse serum administered to guinea-pigs sensitized them, after an elapse of about ten days, to the same kind of serum. A small second dose was often sufficient to cause death, with symptoms of distressed respiration, cyanosis, convulsion and finally death. This phenomenon has been termed anaphylaxis. While this reaction is common in laboratory experiments with guinea-pigs, it is *very* rare clinically. It would be a great pity if these interesting laboratory experiments should curtail the use of antitoxin in diphtheria. It has been thought that the rare appearance of severe symptoms following the use of the first antitoxin dose is due to a natural "sensitization," or anaphylactic condition. The symptoms are marked respiratory distress, and may be due to the contraction of the smaller bronchi. Asthmatics, hay fever patients, and those sensitive to the emanations from the horse are more liable to have symptoms of anaphylaxis on administration of antitoxin. Adults seem to be more subject to this condition than young children. It would seem, if such patients require antitoxin, that they should be given a preliminary dose of atropine, followed by a tentative dose of antitoxin. The writer resorted to this procedure on one occasion where the patient had experienced severe respiratory disturbance following a dose of antitoxin in a previous attack of diphtheria. The patient was given a full dose of atropine, hypodermatically, just fifteen minutes prior to the antitoxin. Concentrated antitoxin was then administered in small doses every fifteen minutes until the required amount was given. In patients in whom there is a suggestion of a sensitized state, this method is worthy of a trial. It may be of interest to analyze the sixteen deaths reported in the literature following the use of antitoxin. The size of the dose in each case was small, varying from 500 to 4000 units. Only six of the sixteen cases were suffering from diphtheria, and six others, owing to exposure to diphtheria, were given small immunizing doses. The remaining four did not have diphtheria at all, but were given antitoxin for asthma. Nine of the sixteen gave a history of asthma in some form.

There is another condition known as "serum sickness" following at a variable interval the administration of antitoxin characterized by rashes of various kinds, with intense itching, joint pains and fever. There may be some edema. The pulse is quickened, but of good strength. This condition may at times be mistaken for measles or scarlatina, though there are not the usual symptoms of these diseases. Park says that about 20% develop the rash. The reaction is certainly less in the concentrated serum where the irritating proteids have been removed by the Gibson process than in the mere bulky product. Calcium chloride[18] has been strongly recommended in gram doses, beginning on the day of the injection of antitoxin.

The treatment of serum sickness is largely symptomatic. Sponge with cold water for the fever, menthol solution for the itching, and heat to the swollen joints.

The general treatment of a patient with diphtheria should be the same as other acute infectious diseases. The room should have abundance of fresh air. The food should be light and nourishing. The urine should be examined occasionally. On account of the heart bearing the brunt of the attack, it should be guarded as much as possible.

The patient must be kept quiet in bed, not only during the attack, but for a considerable period of time after the illness, depending somewhat upon the severity of the attack. The time should also be longer in cases where antitoxin was given late.

Cardiac stimulants should be given as the heart shows signs of weakness. This can best be determined by listening to the heart sounds, particularly the second pulmonic. Jacobi[19] has always been a great advocate of alcohol in some form. At the South Department, Boston, reliance is placed on camphor, caffein, atropine and strychnia.

Cracked ice held in the mouth is grateful, and ice packs to the neck are useful, particularly where edema is present.

The use of local antiseptics is of secondary importance, and if strong may be actually harmful. In my judgment, anything stronger in the nose than normal salt-solution or liquid vaseline is not to be recommended.

To the pharynx in young children antiseptics are of doubtful value, as the physical resistance offered may be more harmful than the local treatment is useful. In older children and adults, my favorite application is a solution 1 part of peroxide of hydrogen to 3 or 4 of water. Some advise Loeffler's solution, while others prefer irrigation with a hot normal saline solution. The ear should be watched for a beginning otitis media.

Paracentesis should be performed early. Borden[20] lays stress on the number of mastoid involvements discovered at autopsy in patients dying with diphtheria whose drum membranes were apparently negative.

Pneumonia is a serious complication, and is especially frequent in laryngeal cases. Stimulants should be given as the case requires.

Gallop rhythm is a serious complication or sequela, and is best treated by absolute rest, rectal feeding, and appropriate stimulation.

Diphtheritic paralysis is a frequent sequela of diphtheria. It may attack any nerve, but particularly those of the palate and larynx. It is more serious when the pneumogastric is involved.

In laryngeal diphtheria, particularly in intubation and tracheotomy cases, it is advisable to use steam inhalations under an improvised tent. Ipecac may be used in slight stenosis pending the action of antitoxin. This should be relied upon but for a *brief* period of time, for we must remember that the laryngeal stenosis not only taxes the respiratory system, but gives an added burden to a heart already weakened by the diphtheritic toxin. As before mentioned, there are cases requiring large doses of antitoxin.

In intubation cases the question of feeding comes up. As a rule semi-solid food is best, and should, if possible, be given in the upright position. Rarely is it necessary to use a stomach tube, or the Castleberry position.

Whether intubation or tracheotomy is preferable in laryngeal stenosis of diphtheria has long been a mooted question. Since the introduction of the intubation tubes by O'Dwyer of New York, which marks one of the brightest spots in American medicine, physicians on this side of the waters have shown a decided preference for intubation. France has for a long time been an advocate of intubation, while Germany is using more and more the O'Dwyer tubes. England, in her conservatism, clings to tracheotomy. It is not to be understood that intubation is to entirely supplant tracheotomy, for there are certain conditions where tracheotomy is preferable.

The advantages of intubation are:—

1. Relief of the stenosis without the shock of a cutting operation, and without an anesthetic.

2. Consent of the family for operative relief is more readily obtained. This is a great advantage, as early relief of the stenosis is a great factor in reducing the mortality.

3. There is no danger of local infection, and less danger of pneumonia in intubation than in tracheotomy.

4. There is no resulting scar.

Tracheotomy instruments should always be at hand where intubation is performed, in case of stoppage of respiration from pushing the membrane in front of the tube. This is not a frequent occurrence. Rarely the patient persists in coughing up the tube, which if continued, requires tracheotomy. There are also cases where there is marked pharyngeal swelling, together with edema of the ary-epiglottic folds, where tracheotomy is indicated. Lastly, if the surgeon cannot remain within easy reach of the patient, in case of stoppage of the intubation tube, or its coughing up, it might be safer to perform tracheotomy. It does not seem necessary to give the technic of intubation or tracheotomy, for excellent descriptions of these operations are given in our text-books. However, the ingenious method of Mosher's[21] intubation deserves mention, and in the hands of some should prove simpler than the indirect method. The same O'Dwyer tubes are used, only it is performed with a straight introducer, through a laryngeal speculum. If the direct method is used for diagnosis, it might be best to continue the operation and insert the tube with Mosher's introducer.

The writer wishes to emphasize the following points:—

1. The diagnosis of diphtheria depends primarily on finding the organism. Cultures

should be taken of every sore throat in children, and likewise suspicious nasal discharges. But in the absence of a positive finding, if the symptoms point to diphtheria, antitoxin should be given. This is particularly important if the symptoms are severe.

2. Much larger doses of antitoxin should be given in diphtheria. Text-books have been misleading in this respect.

3. Laryngeal cases are serious partly from mechanical obstruction, requiring prompt relief of the stenosis, and large doses of antitoxin. Intubation in the main is preferable to tracheotomy. Laryngologists should perfect their technic in this operation until it becomes a fairly simple one.

4. Epidemics of diphtheria are kept up largely by "carriers." They should be sought out, isolated, and the abnormality treated. Diseased tonsils and adenoids may require removal.

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A REPORT OF SEVENTEEN CASES OF PULMONARY TUBERCULOSIS TREATED BY ARTIFICIAL PNEUMOTHORAX.*

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AND

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The seventeen cases included in this report were treated in the Rhode Island State Sanatorium since January, 1912. The primary injections in the first two cases were made by Dr. Cleaveland Floyd, to whose kindness in assisting us at the outset we wish to make acknowledgment. Only nitrogen gas was used, the first few amounts being obtained from a chemist and the remainder being made in the Sanatorium by removing oxygen from air by means of pyrogallic acid and lye. An improvised apparatus and monometer was used until a Robinson-Floyd apparatus was obtained. The Forlanini method of injection was followed in all cases. Anesthesia was at first obtained by 1-10 per cent. solution of cocaine, but as one alarming syncope was believed to have been caused by it, ½ per cent. solution of novocaine was substituted to our satisfaction. Ten men and seven women were treated and only far advanced, progressive, or unimproved cases were selected. No x-ray being available, we were forced to rely on physical examination. In 14, or 82 per cent. of the cases, gas was readily introduced. The literature has been so well reviewed by Robinson and Floyd, Hamman and Sloane, Balboni and others, that no such review will be made by us.

Case 1466. Female, 25, duration of disease, 11 months, fever continuous for eight months in sanatorium, except occasional intervals for a few days. Dullness and medium moist râles heard over left upper lobe front and behind, and apex of lower lobe posteriorly; subcrepitant râles from right apex down to first rib and a few over apex posteriorly. Cough and expectoration increasing and signs slowly progressing in left lung. Gas injections into the left pleural cavity.

Jan.	2, 1912	500 c.c.
Jan.	12, "	1000 "
Jan.	31, "	1200 "
Feb.	12, "	1400 "
Mar.	4, "	1700 "
Apr.	10, "	1300 "
May	21, "	325 "
July	6, "	75 "
Oct.	15, "	150 "
Dec.	20, "	210 "
Jan.	29, 1913	240 "
Feb.	14, "	200 "
Mar.	19, "	350 "

On May 21 the pressure became positive and has been so ever since, the manometer showing 2 to 7 c.m. of water pressure.

Result. Following all injections the same phenomena were noted. The cough and expectoration were markedly increased for from 12 to 24 hours, followed by almost complete cessation of cough. The sputum was reduced from 65 to 30 c.c. by the first injection. Tubercle bacilli which had never been absent during the eight months left the sputum after three months' treatment and have not returned for the year that has elapsed. There is only about 10 c.c. of sputum per day. There is still a slight return of the cough about a month after a gas injection which persists until another injection is given. Patient works four and one-half hours in addition to walking exercise.

Case 1570. Male, 25, duration eight months, of which five had been spent continuously in bed in the sanatorium with afternoon temperature usually between 100 and 101. The left lung infiltrated from apex to base. Signs of a cavity appeared in the lower lobe of the left lung posteriorly about six weeks after admission and a slight amount of fluid at the left base was absorbed during the following months. On the right side slight dullness and harsh breathing extending from the apex down to the second rib with a few râles. Evidently a hopeless case. Gas injections into the left pleural cavity:

* Read at a meeting of the American Climatological Association, Washington, D. C., May 8, 1912.

Jan.	2, 1912	500 c.c.
Jan.	12, "	1000 "
Jan.	31, "	1200 "
Feb.	12, "	1500 "
Mar.	4, "	1600 "
Mar.	23, "	1800 "
Apr.	10, "	1800 "
Apr.	26, "	350 "
June	7, "	525 "

The first seven injections were uneventful, but after 350 c.c. of gas was introduced on the eighth injection he collapsed and was unconscious for over forty minutes, the pulse not being perceptible at first. The patient made a good recovery from the collapse, no permanent harm resulted, and he had one treatment afterward. Cases of collapse occur occasionally after the use of cocaine, even though the solution is dilute and the dose small. One-tenth of one per cent. cocaine was used in this case, the dose being about one-eighteenth grain, and we have felt that the collapse was due to this drug, possibly because of the needle entering a small vein. The pressure was always negative in this case.

Result. After the first injection the afternoon fever which had ranged from 100 to 101 fell to an average of about 99.5 being frequently normal. The patient gained 2¾ pounds and the sputum which had amounted to from 70 to 180 c.c. dropped to 25 c.c., the cough showing corresponding improvement. June 8, 1912, the patient began a series of eight hemorrhages in 16 days totalling 27 ounces of blood which clearly came from the right lung, and as it was not considered feasible to compress the right lung, the treatment was abandoned. The patient died 14 months after pneumothorax was established.

CASE 1579. Male, 24, duration of disease five months, previous to admission. After seven months in the sanatorium during which he had slight fever 99 to 100 F. about a third of the time with four attacks of blood spitting, he had another hemoptysis during which he lost seven ounces, the fever being 101 to 103. Dullness and broncho-vesicular breathing over upper lobe and large moist râles over the whole right lung. The upper lobe of left lung also infiltrated. The first gas injection of 650 c.c. into right pleural cavity, was given during the hemorrhage on April 10. The hemorrhage stopped and did not recur during the remainder of his stay of three months. Subsequent injections were :

May	1, 1912	925 c.c.
May	21, "	1200 "
June	19, "	1450 "

Result. Temperature came to normal five days after first injection, remained normal a week and then recurred. After fifth and last injection temperature remained normal until patient left institution to return to Portugal. Sputum reduced from 50 to 25 c.c., but no improvement in general condition, his weight gradually dropping until he had lost six pounds.

CASE 1577. Male, 18, duration 13 months, of which eight had been spent in the institution and during which he had had two small hemorrhages and streaked sputum on two other occasions, the last being one month before the first gas injection. He had gained well on first entering but for three months previous to gas treatment he had been slowly losing weight and feeling badly. Temperature usually normal. Over upper lobe of right lung was slight dullness, broncho-vesicular breathing and moderate number of moist râles. Middle lobe also shows signs of commencing disease. Two small patches of infiltration in the left upper lobe. Gas injections in right pleural cavity given without difficulty or discomfort, the pressure being strongly negative.

May	1, 1912	650 c.c.
May	21, "	1000 "

On June 15 and 17, the patient had slight hemorrhage of three and two ounces respectively. On June 16 patient had slight chill and vomiting, temperature rising to 102. On the 18th the temperature fell to 99 and patient's stomach symptoms disappeared. On the morning of June 19, 1225 c.c. was injected without difficulty or discomfort. On June 20, marked cyanosis and dyspnea. An unsuccessful effort was made to remove the gas, the negative pressure being too strong. June 22, cyanosis better, but dyspnea continued. Scattered areas of broncho-vesicular breathing and râles in previously healthy areas of both lungs; amount of sputum doubled. The signs of broncho-pneumonia soon became typical, thus accounting for cyanosis and dyspnea. Patient emaciated, steadily lost strength and died July 11, three weeks and two days after last injection.

CASE 1648. Male, 21, duration 22 months, of which nine months had been spent in the sanatorium. Patient had gained 24 pounds in weight but had had six hemorrhages and many slight temperature attacks: Right lung, slight infiltration with few râles above the third rib anteriorly and only at apex posteriorly. Left upper lobe moderate dullness, broncho-vesicular breathing and large moist râles. Upper part of lower lobe also involved and lesion apparently extending. Gas injections into the left pleural cavity:

May	21, 1912	650 c.c.
June	7, "	1200 "

Patient did not improve as fast as he thought he should, refused further treatment, was discharged August 26 and has been working ever since.

Result. The gas given was insufficient in amount to expect much result and there was no striking change in his condition. Patient has had no more hemorhages but whether this can be credited to the pneumothorax is most uncertain.

CASE 1716. Male, 27, duration 32 months, of which three months were spent in the sanatorium. The first three months in the institution he had neither gained nor lost weight, his temperature occasionally going to 100. Left lung completely involved with consolidation in the upper part and cavity signs below the clavicle. Many large moist râles all over the lung. Harsh breathing and few subcrepitant râles above the second rib on the right side. April 22, 1912, patient had chills. His temperature went to 102 and kept high almost continuously with an occasional morning drop to normal. Patient had refused pneumothorax. May 9 signs of another cavity appeared in the upper part of the left lower lobe posteriorly. Gas injec-

tions into the left pleural cavity June 7, 1912, 450 c.c. Patient's temperature continued to go up occasionally but had a two-day normal interval. June 25, 450 c.c. produced positive pressure. Temperature made a decided drop to an afternoon average of about 99.4 with marked relief to the patient. Sputum continued about the same amount.

Subsequent injections were:

July	6, 1912	450 c.c.
July	14, "	400 "
July	27, "	200 "

All producing positive pressure and slight dyspnea. Patient's sputum continued the same in amount. She steadily lost weight and refused more injections, but the temperature continued nearly normal until August 28, when evening temperature again ran from 100 to 102 and patient was discharged.

Result. Striking reduction of temperature followed pneumothorax and continued as long as positive pressure was kept up. Patient was obviously too far advanced to be saved.

Case 1785. Male, 27, duration 30 months, the last month in the sanatorium. Had previously had over a year of treatment in two different sanatoria besides treatment in several health resorts. Temperature nearly normal. Hemorrhage of one ounce about a month before injection. Has lost slightly in weight every week since admission. Slight dullness, broncho-vesicular breathing all over right lung with many large moist râles. Slight broncho-vesicular breathing, occasional subcrepitant râles in upper lobe and upper part of lower lobe of left lung. Patient was discouraged by his continued failure in different health resorts and sanatoria. Injection of gas June 7, 700 c.c. into the right pleural cavity. June 8, two hemorrhages of three ounces each. June 10, several hemorrhages in last two days totaling 20 ounces of blood. June 13, 1225 c.c. of gas injected during a hemorrhage. Temperature 101.8. June 18, three hemorrhages, giving a total of five ounces. June 19, 525 c.c. of gas injected. Hemorrhages ceased but temperature continued 99 to 100 with occasional rises to 101. All injections had been stopped on negative pressure and were uneventful. July 16, 100 c.c. gas injected. Injection discontinued because of pain. June 23, patient developed diarrhea accompanied by abdominal tenderness which was believed to be due to tuberculous enteritis. Patient left the institution and died five months after the first injection.

Case 1645. Male, 30, duration 16 months, of which 10 had been spent in the sanatorium. Had gained seven pounds in weight in the first four months and then began to have spells of temperature. Both lungs were markedly involved, the left being decidedly the worse with signs of cavity formation below the clavicle. The right lung, however, having slight broncho-vesicular breathing and râles through the upper lobe and a few râles in the upper part of the lower lobe posteriorly. Gas injections into the left pleural cavity.

June	7, 1912	700 c.c.
June	25, "	200 "
July	6, "	100 "

Except the first time, only small amounts could be injected as the manometer registered positive and the sense of pressure was uncomfortable. Four different places were tried. Sufficient gas could not be introduced to expect any result and there was none. The patient lived eight months after the treatment was instituted.

Case 1783. Male, 36, duration seven months, including one in the sanatorium. Fever continuous from 100 to 105 with prostration. Left lung moderate dullness very marked bronchial breathing, increased voice conduction and moist râles from top to base. Upper lobe of right lung infiltrated. Gas injections into the left pleural cavity. June 7, 125 c.c. caused positive pressure and pain. June 25, 200 c.c. caused positive pressure and pain. Four points of injection were tried.

Result. Failure to inject sufficient gas. Patient died about two months after the first injection.

Case 1431. Female, 35, duration 17 months, of which 14 were passed in the sanatorium. Patient was in bed with fever for nearly 30 weeks after admission, the fever running between 103 and 105 for nine weeks with much pleuritic pain in the left side. Patient had been in bed with many spells of temperature since. She had had six small hemorrhages and streaked sputum on many occasions. Had been in bed two weeks with temperature between 99 and 100 at the time of first injection. Left lung has a few subcrepitant râles in the lower lobe, and patient has had almost constant pleuritic pain in this area. Right lung also has subcrepitant râles over upper lobe and apex of lower lobe posteriorly. Gas injections into the left pleural cavity.

June	25, 1912	650 c.c.
July	6, "	900 "
July	16, "	750 "
July	27, "	800 "
Aug.	27, "	450 "
Sept.	11, "	450 "
Sept.	27, "	500 "
Oct.	15, "	350 "
Dec.	20, "	725 "
Jan.	29, 1913	785 c.c.
Feb.	6, "	750 "
Mar.	19, "	550 "

The first injection caused enough dyspnea to be uncomfortable, and this symptom was noted to a less degree on two other injections. Positive pressure varying from a slight amount up to three c.m. of water was produced at the end of the last four injections.

Result. Patient is much improved but is still far from being well. Her sputum is about the same in amount and usually contains bacilli. She had a hemorrhage on the 15th and also on the 17th of October, and streaked sputum on two other occasions, but she had had almost complete relief from the pleurisy in the left side and although she quite occasionally has a temperature of 99.4 to 99.6 in the afternoon, she has not been in bed with a temperature regarded as due to tuberculosis since the second injection. Is still in the sanatorium.

Case 1597. Female, 15, duration 15 months, of which nine months had been spent in the sanatorium. Nearly all of the first eight weeks after admission were spent in bed. The fever constantly tended to recur and patient had been in bed or on her bed over half the time. She had, however, gained 14 pounds between October, 1911, and March, 1912.

From May 14 to June 25, her cough increased, she began to have slight temperature up to 100 more frequently and slowly lost weight, five pounds in all. There was considerable consolidation with moist râles in the upper lobe of the right lung with cavity signs near the apex. The upper part of the lower lobe was involved posteriorly. Signs in the left lung covered about as much area but there were no signs of excavation. Gas injections into the right pleural cavity:

June	25, 1912	500 c.c.
July	6, "	750 "
July	16, "	700 "
July	27, "	500 "
Aug.	27, "	500 "
Sept.	11, "	500 "
Sept.	27, "	500 "
Oct.	15, "	500 "
Nov.	7, "	500 "
Dec.	20, "	825 "

The last injection was the only one in which a positive pressure was recorded. After the third injection the temperature fell to normal and remained there for several months except for an occasional 99.4 once in two or three weeks. She regained the five pounds which she had lost and coughed less but the amount of sputum kept the same, T. B. being still present. The improvement only lasted about five months as temperature and cough began to increase after the last injection which was about a month before discharge.

CASE 1788. Male, 26, duration of disease 13 months, one of which had been spent in the sanatorium constantly in bed with fever from 99.5 to 101 almost never normal. Marked weakness. Upper lobe of left lung had consolidation and excavation with many moist râles. Upper part of lower lobe also had moist râles. Upper lobe of right lung badly infiltrated. Hemorrhage or streaked sputum on twelve days of the first month. Gas injections into the left pleural cavity.

June	25, 1912	700 c.c.
July	16, "	1000 "

Resulting in positive pressure.

Result. The patient continued to fail steadily and died July 30, 1912, apparently uninfluenced by the treatment.

CASE 1800. Female, 29, duration eight months, of which three had been spent in the sanatorium. Was a third of the time in bed with recurring temperature attacks. Had gained but five pounds during this time. Upper lobe of the left lung much infiltrated, also apex of lower lobe. Upper half of right upper lobe infiltrated. Gas injections into the left pleural cavity.

Aug.	27, 1913	500 c.c.
Sept.	11, "	800 "
Sept.	27, "	850 "
Oct.	15, "	800 "
Nov.	7, "	800 "

Result. Pleuritic pain and temperature followed the first injection for four days, upon which the temperature fell to normal and remained there for five months during which time the patient gained 8¼ pounds. Patient declined to take further treatment and temperature is commencing to return. The sputum was not reduced in amount, but since the gas has been absorbed the amount had doubled.

CASE 1752. Female, age 14, duration 17 months, of which five had been spent in the sanatorium. In bed continuously since admission with temperature of from 99.5 and 102, was growing weaker but held her own in weight. Left lung, upper lobe consolidated with signs of large cavity at the second interspace and much moisture. Upper part of the lower lobe infiltrated with signs of moisture. Signs in right lung cover much the same area but signs of consolidation and excavation are absent. Only the bases of the lungs were free from signs. A desperately sick case in which the advisability of giving the treatment was very doubtful. Gas injections into the left pleural cavity.

Aug.	27, 1913	100 c.c.
Sept.	11, "	200 "
Sept.	27, "	350 "
Oct.	15, "	350 "
Dec.	20, "	400 "

Patient was subject to attacks of syncope and had a slight attack during first injection which completely passed away in five minutes.

Result. Following the second injection the temperature fell to normal remaining there for over four months or during the remainder of the treatment. The patient gained strength, was up and about, and the sputum fell to about one-half its former amount. Declined to continue treatment.

CASE 1846. Female, 21, duration of disease 31 months, of which one had been spent in the sanatorium. Fever had run between 100 and 103 for a month previous to the first treatment during which cavity signs had commenced to appear at the right apex. Right upper lobe partially consolidated with pronounced moisture. Middle lobe and apex of lower lobe infiltrated. Râles from left apex down to second rib anteriorly. Gas injections into the right pleural cavity.

Aug.	27, 1912	350 c.c.
Sept.	11, "	750 "
Sept.	27, "	750 "
Oct.	15, "	800 "
Nov.	7, "	600 "
Dec.	20, "	50 "
Jan.	29, 1913	190 "
Feb.	14, "	300 "

Manometer showed positive pressure at the close of all injections. After the first two only slightly positive pressure could be tolerated.

Result. Temperature reduced to below 100 after the second injection and almost to normal after the fourth injection. Marked general improvement. Patient is up and about and has gained 13 pounds. since the first reatment. Is still in the sanatorium.

CASE 1995. Male, 20, duration 42 months, a chronic relapsing patient who had been in other institutions and who wished to try pneumothorax. Temperature normal The right lung is infiltrated from apex to base. Subcrepitant râles heard all over. Subcrepitant râles also heard at left apex. Gas injections into right pleural cavity.

Jan.	29, 1913	100 c.c.
Feb.	6, "	500 "
Feb.	14, "	25 "

Gas introduced the first time after one failure and the last time after two failures. They were accompanied by considerable pain at the site of injection and the patient left the institution to obtain a new treatment of another kind. No result.

SUMMARY OF SEVENTEEN CASES.

Of the Condition of Patients:—

All had bilateral disease.

All had tubercle bacili in the sputum.

Nine were far advanced and progressing.

Four were moderately advanced and progressing.

Twelve were chronic fever cases.

Six had cavities.

Sixteen had failed to gain in the Sanatorium after an average duration of six months.

Of the Results:

Three could not be given gas enough for a fair test.

Seven had their temperatures reduced to normal.

Five had their P. M. fever reduced to an average of 99.5.

Nine gained weight.

Eight abandoned treatment after marked improvement.

Two developed hemoptysis in the opposite lung.

One developed bilateral tuberculous bronchopneumonia.

Seven died with an average duration of life of 5.2 months after treatment was instituted.

One most discouraging fever case has had arrest of the disease with absence of bacilli for over a year.

While seventeen cases are obviously too few to form definite conclusions, it is our impression that pneumothorax prolonged the life of 12 or 70%, of these far advanced and progressive cases. We would expect much better results in unilateral cases and in those less far advanced. Most moderately advanced progressive cases in which high or moderate fever is not controlled within a month or two by rest in bed and in which it is clear in which lung the disease is active are entitled to a prompt trial of this method, especially as the chance of recovery in these cases is slight when treated by ordinary methods.

A METHOD OF SUPERVISION IN MEDICINE.

BY WILLIAM T. CAROLIN, M.D., LOWELL, MASS.

In the practise of medicine today one meets a peculiar paradox. It is this. That while at no time in history was medical science and art a truer part of each practitioner's honest attributes than the present, nevertheless, at no epoch was his reputation for leadership in science less potent in guaranteeing to him success in practise than it is today. That this is no new observation is evidenced by the fact that Dr. Henry J. Bigelow made it the theme of his valedictory to the Harvard Medical students of 1846. Since that date science has gone forward in leaps and bounds, and medicine has shared in the growth. This tends to heighten the absurdity of the paradox. It makes the breech wider between the actual situation and the public estimation of the physician. Many reasons have been given for this state of affairs. They range from quackery and charlatanism to over-divided specialism. Each cause undoubtedly affects, to some extent, local conditions of states or countries. If, however, we go deeper and analyze critically and impartially the medical practise of today and compare it with that of the age when the physician was the honored and revered friend, the confidant and adviser of the family, often for two or more generations, we will find two important elements missing. First, a knowledge of health, and second, an absence of the recognition for authority in medicine. There are others, no doubt, but these two are fundamentals, and little genuine reconstruction can be accomplished until both are restored to their rightful places.

Medicine is a composite science. Its advance is as much dependent on physiology, anatomy and chemistry as it is on any knowledge of disease, its symptoms, and its pathologic manifestations. Nevertheless, we too frequently look upon the practise of medicine as being something apart from that state called health, *i.e.* the physiologic condition of each human being. This often robs disease of its identity, because we have disregarded that by which disease is measured,—namely, health. It has given to therapeutics an uncertainty and an absence of fixed standards for treatment. All this has affected the standing of the physician among the learned professions. The practise of law will illustrate this. Here there is a fixed standard. No one ever thinks of one person presuming to act as examining counsel, judge and jury, yet that is what the physician does in practise. Furthermore, he argues and adjudicates in private. His various decrees, *i.e.* his treatment, have been so varied that the people have come to interpose their private opinions as to the value of these therapeutic decisions. The successful practitioner, by this process of reasoning, soon came to be the

man who was best able to meet this popular estimate. If the practitioner went one step further and threw overboard honesty, abandoned truth, and catered to popularity, his pecuniary success was assured,—"One of the few modes of getting money by unblushing, false pretence," wrote Bigelow, "of which the law does not in the United States take cognizance." I am not speaking of a scientific, nor of a desirable reputation, nor of the respected practitioner, but rather of him who, in so many centres, is looked upon by the public as the leader in medical practise,—a clever pretender.

This insecurity of the qualified practitioner's position today, in medicine, can be traced directly to the overthrow of authority in medical science brought about by the unwarranted invasion of the inductive method of research. Let me not be misunderstood. No one questions the invaluable contributions to the physical sciences resulting from the methods of investigation inaugurated by Bacon. It may be stated further, that if the deductive method of Aristotle had remained dominant, the marvelous developments in the physical sciences, the products of physical research and of discovery, as we see them today, would not be possible. When, however, the inductive method was carried beyond the legitimate bounds of its field of application, namely physical science, it destroyed existing authority without being able to establish any new authority. A little reflection shows this. The inductive method is built upon hypothesis. It gives us a physical certainty, but not an absolute certainty. Many of the brilliant results claimed for the inductive method were fortunate guesses,—nothing more. So long as the experimental method founded upon induction based its conclusions on the results obtained in medical science which have a physical basis, all was well. When, however, it carried its methods of research into the field of the immaterial in medicine; when it attempted to bridge the chasm between the material and the immaterial, to deal with the invisible as well as with the visible; when finally it went further and dealt not with brute matter, but with mind, thought, conscience, God,—then it entered a field where its methods were not even logical, and where its conclusions had no certainty whatever. The establishment of fixed principles in mental science by means of the inductive method is not possible. The chaos which has resulted in the science of psychology by attempting this is well recognized. The present day divergencies of opinions on moral and religious questions also add corroboration to the same testimony. Each has suffered, as has medicine, namely, all respect for authority has been destroyed.

The inductive method has substituted laws based upon experiment and upon human experience. The authority thus created, so far as it is an authority, soon becomes the subject of scientific inquiry and investigation. Each physician knows that in his practise of medicine he is constantly meeting problems and mysteries upon which science can throw little or no light. Bacon, Locke, Mill, and other leaders in the inductive school of research recognized this, and ever warned their followers of the dangers that threatened authority, if the speculative action of the mind is given a free rein in science. The spirit of the inductive school has now reached beyond the confines of the scientist.

The lay public wants to know the *why* and not the *what* in medical science. It feels that it is possessed with sufficient scientific acumen to follow the most learned among the profession in their conclusions. The physician who cannot explain the *how* of each step in the process of diagnosis and treatment can hope for little by way of reputation with the present generation. In other words, the authority demanded in medical practise today is that of *facts*, not the authority of medicine, nor of the physician. The best method to reëstablish authority is thorough judgment. Judgment is the art of common reason, and a gift which transcends the acquisition of certain knowledge. Judgment is either positive, *i.e.* a firm *conviction*, or uncertain, *i.e.* merely an *opinion*. The chief source of human error is the tendency of mankind to exalt opinions into convictions, to regard as certain that which is uncertain, to jump at conclusions where there is no warranty for doing so. In other words, there has been too much emphasis placed upon what is often simply an hypothesis, and a too ready disposition to raise the stage of hypothesis to that of an established law. All this has lowered the dignity of the physician. To regain its lost prestige, both as a science and in the confidence of the people, medicine and the physician must be reëstablished in authority along lines in harmony with modern science and modern thought,—lay as well as professional.

This result can be attained best, I believe, by a method of medical practise which I have personally carried out for more than ten years. It is based upon the principle of recognizing authority in medicine. I have called it—*Supervision in Medicine.*

This method was first outlined in the description of my specialty in practise as given in the Alumni roll of Harrington's History of the Harvard Medical School, Vol. III, p. 1551, viz.—"Specialty,—A Supervisor in Medicine, a method which involves diagnosis in the first instance, with further treatment in ordinary cases, and in extraordinary cases placing the patient under the personal supervision of the family physician, in direct relation with specialists of recognized authority in medicine or surgery." So far as I know this method of practicing medicine had never been outlined before. It differs from the family physician idea and from the medical or surgical consultor practise in several important essentials. In the first place it is principally advisory. It involves little or no prescribing of drugs. In other words it means scientific medical advice in those cases where no pathology

exists, and secondly, it places those patients with pathological lesions or disease under the care of competent recognized authority in the various specialties. The consultation is between the medical supervisor and the patient. The supervisor, after the examination of organs, senses, fluids, blood, excreta, etc., is the judge of the future course in treatment. His advice is authority, whether as to diet, clothing, work, rest, or other preventive or curative measures, as well as with whom the patient with a *pathological lesion* should treat. This course insures two things. First, it gives to each person consulting the supervisor, the benefit of that thought and action which any physician would expect to receive from a brother practitioner, if he himself were the patient. Secondly, it does away with the present day method of each patient deciding for himself what specialist he should select, a choice not always wisely made. The supervisor makes the choice of specialist on one basis only,—namely, is the specialist the highest authority in his line in that immediate locality? The position of recognized authority in any special line of medicine in any locality can be readily ascertained and with great accuracy. To attain such a high rating would be the ambition of each specialist. This would aid medicine greatly. A physician who secured this high endorsement would be assured of continued recognition because his position in medical ratings is built upon the confidence of a reputation secured legitimately, rather than upon the whimsical fancy of the lay public. The benefit to the patient would be very great. He would be guaranteed a high authority in the care of his disease. The protection to the public against quackery, pseudo-science, unnecessary drugging and knavery would be guaranteed so far as such protection can be guaranteed. This method of supervision would do away with those systems of therapy now employed in the treatment of patients with no other lesion than brain or nerve fag.

The whole plan of medical supervision is based upon scientific medicine of the highest order. It recognizes drug giving, surgery, mechanical and organ therapy, x-ray, etc., when a genuine pathological condition is present; it substitutes advice, supervision and guidance, when there is no pathological lesion demonstrable. It re-establishes an authority in medicine by recreating the type of medical practise which was once the prize of him who was so loved and trusted as the family medical adviser.

It is needless to state that he who undertakes the office of medical supervisor must first establish a high standing in the confidence of the public. He must combine keen perception and critical analysis. He must be a close student of the psychology of human nature. He must keep abreast of the latest in medicine. He must know the real professional rating of the physicians, surgeons and specialists whom he selects as authorities. This rating must be honest and unbiased. It must not savor in the least degree of a medical trust, but should be wholly for the benefit of the patient.

TUBERCULOSIS OF THE EPIDIDYMIS: ITS EFFECT UPON TESTICLE AND PROSTATE.*

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In two recent articles on tuberculosis of the epididymis (Boston Med. and Surg. Jour., Dec. 14, 1911; Mar. 14, 1912) the writer maintained first, that genital tuberculosis was generally primary in the prostate and vesicles; second, that "healthy testicles are daily being removed under the impression that cure is more likely to follow."

The elapse of time, and with it, the opportunity to study additional cases, as well as to review the older material, has made the foundation upon which our former hypothesis rested crumble away under the weight of accumulated facts; the second is being strengthened daily with material contributed by the surgeon. My first contention was already that of Berard and Robin, Vidal, Pitka, and Thompson (all cited by Hallé and Motz), and more recently, Socin, Krzywicki, Burckhardt, Orth (cited by Walker), and Marwedel have declared the prostate to be the primary focus.

That it is rarely so is proved by overwhelming evidence, pathological and clinical. In 183 cases of genito-urinary tuberculosis Guisy found but 10 involving prostate and vesicles alone, in 5 the prostate only was affected, while in 1 the vesicles alone were attacked. Saxtorph, in a series of 205 cases of genito-urinary tuberculosis, found but 9 primary in the prostate, with 2 originating in the seminal vesicles. Combining these figures it is seen that primary prostatic lesions, with or without vesicular involvement, occur in only about 6% of all cases of genito-urinary tuberculosis, while the seminal vesicle can practically be disregarded as the primary focus. We do not recall a single proved case in our clinic at the Massachusetts General Hospital, nor are we aware that the autopsy records of the hospital contain one.

All are agreed, however, that the prostate becomes secondarily infected with exceeding frequency in tuberculosis of the genito-urinary tract. Its anatomical position places it between two fires, one from the kidney above, the other from the epididymis below. According to the combined statistics of Burckhardt, the prostate is invaded sooner or later in 73% of all cases. Jullien and Desnos (cited by Hallé and Motz) give an even higher figure. Hallé and Motz, in

* Read at a meeting of the Genito-Urinary Section of the New York Academy of Medicine, March 19, 1913.

67 specimens of genito-urinary tuberculosis at the Necker Hospital, found prostatic lesions in 88%.

Our own figures substantiate these. In 101 rectal examinations of patients with tuberculosis of the epididymis, the prostate is recorded as tubercular in 76 or 75%; in the others it was regarded as negative. As the only clinical method of detecting foci in the prostate is by digital examination we must acknowledge that it offers a certain percentage of error, an observation which we find agrees with that of Hallé and Motz. But that this error lies generally in the detection of small, early, and centrally located lesions we think is obvious. Our figure of 75% is, therefore, a conservative estimate.

In 25 cases, where prostate and vesicles alone were examined, they were found to be tubercular in 20, negative in 5. Examined in combination with the testicles, we have records of the condition of 76 prostates and vesicles. All three were diseased in 29 and healthy in 12; in 27, prostate and vesicles were said to be involved in the presence of a healthy testicle, while in 8 prostate and vesicles were negative and testicle positive.

Looked at from another standpoint, where prostate and vesicles were regarded as tubercular, epididymitis was unilateral in 38, bilateral in 38; while in the negative cases one epididymis was tuberculous in 16, and both were involved in 9. From which it follows that prostate and vesicles become readily involved in the presence of one tuberculous epididymis, and before infection of the opposite side has had time to take place. In substantiation of this point we have data as to the condition of the prostate and vesicles and the known duration of the epididymal infection in 99 cases. In the first six months of the disease prostate and vesicles were found to be infected in 40, healthy in 15; in the period from six months to one year 14 were positive and 3 negative. After the first year, and, in some cases, after a period of six or seven years, prostate and vesicles were tuberculous in 20, negative in 7. Thus in the first six months of the disease 30% are infected, and in the first year 54%. On the other hand we must not lose sight of the 7 prostates which are said to have held the enemy at bay for periods ranging all the way from one to six or seven years.

With so frequent and early an infection of prostate and vesicles the bladder neck becomes irritable and at an early date. In 45 patients (35%) urinary symptoms such as frequency, dysuria and urgency were recorded, while 43% of 104 urines contained pus, blood and albumen. Also out of 10 urines with which the guinea-pig was inoculated 8 showed the presence of the tubercle bacillus. As in the absence of symptoms pointing to the kidney, cystoscopy and ureteral catheterization have seemed to us to be unwise, it is barely possible that some of these tuberculous urines were of renal origin. In our series there were recognized and operated upon four cases of renal tuberculosis, occurring at some time or other in the course of the epididymitis. These are not included in the 10 cases in which the urine was tuberculous. It is probable, therefore, that the pathological urine and the bladder symptoms took origin from the prostate in all. With these findings prostate and vesicles are recorded as tubercular in 28, negative in 4. Furthermore, the relation of bladder irritability to the known existence of the epididymitis has been looked into in 43 cases. In 21, or 49%, urinary symptoms were present in the first six months of the disease, whereas in the first year the figure jumps to 27, or 62%.

It is generally acknowledged that after epididymectomy as well as orchidectomy, or, in other words, after removal of the primary focus, the condition of prostate and vesicles improves in most cases. Marinesco, Israel, Duplay, and Baudet (all cited by Lapeyre), are strongly of this opinion. Lapeyre also agrees to this, and incidentally remarks that while mild infections of the prostate and vesicles heal after removal of the epididymis, the severe infections are not benefited by prostatectomy. The end results of a series of 71 of our cases bear out these opinions. Before operation the prostate was infected in 63%, while after operation this infection was noted in but 57%.

Furthermore, we are seeing post-operative cases almost daily in our clinic whose urinary troubles and prostatic lesions are being markedly soothed by a combination of time, tuberculin and hygiene.

Various pathological pictures may be presented by the tuberculous prostate. According to Reclus and Simmonds (cited by Hallé and Motz) the early lesions are often unilateral in the lobe corresponding to the diseased epididymis. Hallé and Motz think that this is hard to prove pathologically, and often impossible clinically. The latter divide the lesions of the prostate into five groups:

1. Small primary tubercles.
2. Large tubercles, which can present macroscopically a stage of softening, a stage of encystment, and a stage of fibrous induration.
3. Encysted tuberculous abscesses.
4. Tuberculous cavities partly or wholly open.
5. A special form of massive infiltration, caseous or necrotic, this being the most common.

Careful pathological study shows that the tubercles especially abundant in the middle lobe, are generally bilateral; in more than half the two lobes are attacked; unilateral lesions are distributed without marked predilection for one or the other side. These observations of Hallé and Motz are based on the material at the Necker Hospital. That it is all too scanty to determine the exact extent and order of lesions is obvious. To quote their own words:

"An integral mass of statistics, patiently followed up, on pulmonary tuberculosis on the one hand, and on genito-urinary tuberculosis on the

other, from the earliest clinical side of the patient, to the ultimate issue will furnish sufficient and certain conclusions. We do not yet possess such a mass of statistics."

Our own postmortem material is scanty. Four cases died in the hospital within a month of operation giving an operative mortality of 2.72%. Miliary tuberculosis was responsible for the death of three; the cause of death in the fourth is not clear, and no autopsy was performed.

In one, a boy of six years, with a unilateral process of two months' duration, practically every organ outside the genito-urinary tract was studded with miliary tubercles. The excised specimen showed tuberculosis of the epididymis (there was no note on the testicle), but strangely enough bladder, prostate, seminal vesicles, and the remaining testis and epididymis showed no evidences of infection. There was a history in this case of an early tuberculosis of lung and meninges, and its remains were found at autopsy.

The second case, aged 35 years, had a more or less active process in the spine, of six years' duration. The epididymitis was right-sided, and of unknown age. Autopsy showed old tuberculosis of right kidney and ureter, bladder, pleura, peritoneum, bronchial lymph glands, spine, seminal vesicles, and prostate, with abscesses in the latter. Both testicles, and the remaining epididymis were healthy. A cover-glass preparation of the seminal fluid showed no tubercle bacilli (a point which will be discussed later).

Our third case occurred in a man of 20 years, the process was again right-sided, its duration was said to be only a few days, and the pathologist reported an infection of testicle as well as of epididymis. Autopsy showed a general miliary tuberculosis, including the meninges. The bladder was uninfected, as well as the left seminal vesicle, and the left testicle and epididymis. But the prostate and right seminal vesical contained abscesses and caseous foci.

In connection with the pathological aspects of the situation it is important to record the extraordinary frequency with which other organs than those of the genito-urinary tract are, or have been, infected. In the present series of 125 cases, the lungs were involved 30 times, bones 8 times, points 4 times, larynx 3 times, glands, twice, middle ear, meninges, peritoneum, and ischio-rectal fossa each once, a total of 33%. In 4 others, the localization of the tubercle bacillus was not mentioned. In a previous analysis of 112 of our cases in which these points were mentioned, a history of previous, and apparently cured tuberculosis, was obtained in 6%, while in 29% active lesions were found occurring in the same organs as in the present series and with about the same frequency. The statistics of others, notably Keyes, Jr., Guisy, Marinesco, and Haas are closely in accord with ours.

Let us now see what is the effect upon the testicle of tuberculosis of the epididymis. Its proximity to, and practical union with so dangerous a neighbor would make its chances appear slim. Yet its remarkable defence is equalled only by its ability to "come back" after receiving what appears too serious punishment. We have remarked elsewhere that "healthy testicles are daily being removed under the impression that cure is more likely to follow." The facts are these. Definite statements have been made as to the condition of 112 testicles in this series. Epididymitis was unilateral in 73, bilateral in 52. Clinically, the testicles were positive in 51 (44%), negative in 61 (54%). The tables are turned, however, by the pathologist, who, in an examination of 75 testicles reported 50 (66%) as tuberculous, and 25 (33%) as healthy. Haas gives the figures of 134 testes, examined pathologically, in which 72 were normal and 62 tubercular.

It is striking that of the 50 infected testicles, 37 occurred in unilateral cases, and only 13 where the process was bilateral. In other words, testicular infection is generally found in the early months of the epididymitis. Thus in the cases of under six months standing the testis was infected 39 times, healthy 20 times; in the next six months tuberculous testes were found 3 times, no healthy ones occurring in this period. So that out of a possible 73 with pathological examination, and with the duration of the disease stated 39, or over 53%, were found tuberculous in the first six months. That the testicle may preserve its virtue over a long period of time in spite of the overtures of a persistent bedfellow is illustrated by four which were unaffected after six years, five years, four years and one year of constant insult. These observations differ from those of Haas and Lapeyre, who found the percentage of infected testicles to be progressively greater with the age of the epididymitis.

It would appear at first sight that these figures struck our argument a mortal blow. On the other hand the surgeon has helped the cause by his habit of promiscuous castration. For, if, as has been shown, the testicle is so often and so early affected, it follows that in the cases where it has been judiciously left behind the same percentage of disease is to be expected as in those removed. But what has been the result? In a total of 147 patients the testicle was removed 97 times, the epididymis 67 times. Yet of these latter, not one has returned for orchidectomy. Many have been followed personally or by letter, and many have made weekly visits to our clinic for tuberculin and general supervision over a long period of time. What better proof could we offer of the efficacy of epididymectomy, even though we know that in certain of them a more or less infected testicle has been allowed to remain? In cases where the presence of tuberculosis is perfectly obvious the free use of the curette is advocated; in suspicious cases we agree with Lapeyre that an exploratory orchidotomy, partial or complete, is not only justifiable, but harmless. On the other hand, we do not wish to give the impression that certain testicles are better in than out, these being the ones which are studded with tubercles and manifestly

beyond hope. It comes down, then, to a question of judgment, tempered by experience, and with a strong leaning toward conservatism.

We find that our experience and belief on this point is also that of others, notably Lapeyre, Keyes, Jr., and Marinesco, although the latter has had six of his unilateral epididymectomies return within two months of operation for a secondary castration. Our combined experience is that the testicle which has been saved has a not unhappy future, even though the use of the curette has been necessary. Its size, shape, consistency, and, in most cases, its sensation are unaffected. The benefit to the patient, morally and physically, are well worth the very slight chance of the necessity of a secondary orchidectomy.

As to the pathology of the tuberculous testicle we have but little to say. Macroscopically, the organ may be studded with miliary tubercles, or it may present a caseous or necrotic focus along the course of its junction with the epididymis. That such a focus is usually situated at or near the rete testis seems to be generally agreed upon by others, and is substantiated by a few observations in our own material. In one specimen the pathologist reported a caseous focus lying in the center of the organ.

The mode of infection of epididymis, prostate, vesicle, and testicle, especially in the bilateral cases offers a wide range of theory. Most are agreed that tuberculosis of the genital tract is primary in the epididymis, although it has been shown that the prostate occasionally, and the seminal vesicle rarely, may be the starting point. Barling (cited by Walker) has reported two cases in which the primary focus lay in the testicle. Admitting that the epididymis is the primary focus, is the prostatic infection of hematogenous, lymphatic or deferential origin? It has been shown clinically by almost all, and experimentally by Walker and others, that the lower end of the vas deferens is frequently effectually blocked by the disease at an early date, yet we have seen that prostatic involvement is also early. Also it has been demonstrated experimentally (Walker) that even if the vas is ligated, prostatic infection may still occur. It would, therefore, appear that, in many cases at least, the tubercle bacillus reaches prostate and vesicles by the lymphatics or by the blood stream. Yet, on the other hand, it has been amply demonstrated by Sirena and Pernice (cited by Walker), Nakarai, Gaertner, Simmonds, Solles and others that virulent tubercle bacilli may be found in the semen of tuberculous animals and human beings. So if the vas remains patent for any length of time it is quite possible for infection of prostate and vesicles to take place in this manner. When infection by way of the vas does occur experimental and clinical observations favor strongly an ascending, rather than descending process. But that a descending process is not only possible but probable in certain cases, has many advocates. It must explain at least some of the bilateral cases of tuberculosis of the epididymis which are so common. In our series there were 52 such cases, as compared with 73 affecting only one side. In 34 the onset of the disease in the second side, after involvement of the first, has been recorded. In the first six months the process became bilateral in 30%, in the next six months in 20%; the remaining 50% relapsed after the first year. Here again the first six months is the most active period. How are we to explain the infection of the second side? In the first place the descent of the disease along the vas has been shown to be infrequent; in the second place, it has been demonstrated by Keyes, Jr., and the writer that even in unilateral disease aspermia is very frequent, indicating obstruction, not only of the first vas deferens, but also of the second at some point in its course. We must, therefore, regard the infection of the second epididymis as either hematogenous or lymphatic in most cases.

The conclusions to be drawn from this investigation are as follows:

1. In genital tuberculosis the epididymis is the primary focus in the vast majority.

2. Tuberculosis of the epididymis becomes bilateral in 41.6% (Chart I) of all cases and becomes so within six months of the time of involvement of the first side in 30% (Chart II).

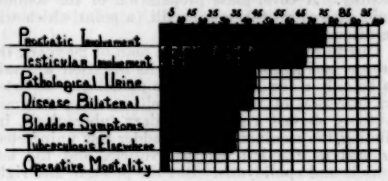


CHART I.

Showing general effects of disease in percentages. Clinical diagnosis of testicular involvement shown in gray only; pathological diagnosis includes gray and black.

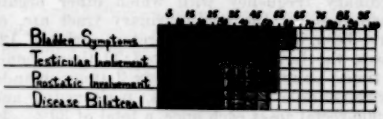


CHART II.

Showing extent of disease in percentages in first six months (in black), and in first year (in gray).

3. The prostate and vesicles are found to be infected in 75% (Chart I), this infection occurring in the first six months in 30% and in the first year in 54% (Chart II). It is also shown that this infection takes place quite as often in the presence of unilateral, as of bilateral epididymitis.

4. The urine is pathological in 43% (Chart I) of all cases; bladder irritability is found in 35% (Chart I) and in about half of these it occurs in the first six months.

5. In 33% (Chart I) tuberculosis, past or present, of organs other than those of the genito-urinary tract, is to be expected. The lungs are most often attacked.

6. Clinical observation shows tuberculosis of the testicle in 44% (Chart I), but the pathologist finds the disease in 66% (Chart I), and of these 53% (Chart II) are found infected within six months of the onset of the epididymitis.

7. The records of 67 epididymectomies, show that no case has yet returned for orchidectomy. The radical operation is, therefore, rarely necessary.

8. Infection of the first and second epididymis, as well as of prostate and vesicles, seems to be by the blood or lymphatic streams, but it cannot be denied that in some, infection takes place through the vas by an ascending or descending process.

9. The operative mortality of 147 cases is 2.72% (Chart I), a general miliary tuberculosis being the most common cause of death.

10. As it has been shown that the infection may become widespread in the first six months of the disease operation at the earliest possible date is strongly indicated.

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A CASE OF "SYPHILITIC PERIOSTITIS" CURED BY SALICYLATES.

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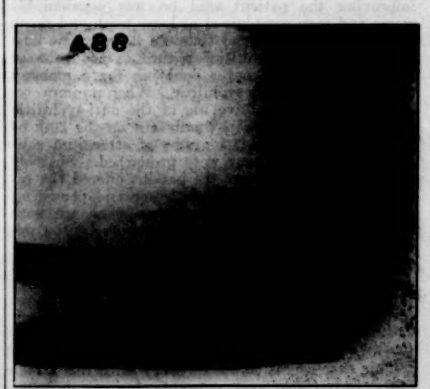
THE following case presents such interesting and instructive features that it seems worthy of publication:—

The patient, William J., a colored man, 31 years old, was admitted to the service of Dr. H. B. Allyn in the Philadelphia General Hospital, complaining of constant pain in the right elbow. Until three months before admission patient was perfectly well as far as his arm was concerned. At this time after having chopped a great deal of wood, he began to have pain in the right elbow. This discomfort gradually increased until he was unable to use the arm, which disability persisted and was present at the time of admission to the hospital. Nothing else was complained of when he was first seen on November 5, 1912.

Previous Medical History. Patient has had all the diseases of childhood, and claims to have had typhoid fever in early life. A year ago he was sick all winter but nothing definite as to the nature of the illness could be obtained apart from the fact that he was confined to bed with palpitation of the heart. Patient admits gonorrheal infection about a year ago, and also confesses that he had a sore on his penis. From his description the impression was gained that the latter infection was perhaps chancroidal. The use of tobacco is denied, but patient indulges himself liberally in brandy, frequently to the point of intoxication.

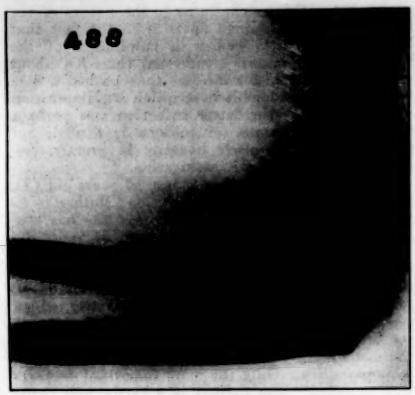
Family History. Father living, 53 years old (?), and is a sufferer from rheumatism. Mother is 50 years of age (?) and patient believes she has "tumors" of the stomach. One brother, 39 years old (?), is living and well. The ages of the parents and of the brother are given as stated by the patient, but as is usual with individuals of this class, family ages are not recorded very accurately, which accounts for the improbable "thirty-nine" years of the brother as contrasted with the "fifty years" of the mother.

Examination. Only the more important features will be noted. The patient is a fairly well nourished colored man, apparently of the age stated. There are no significant cutaneous lesions but some scars of a pre-existing eruption are seen on the skin of the thorax. The cervical, axillary, epitrochlear and inguinal glands seem enlarged. There is very little expansion of the thorax, and the left side above and below the clavicle is more flat than the right side in the corresponding regions. On percussion, there is impaired resonance over the left apex anteriorly and posteriorly, and below the angle of the scapula the note is dull. Over this latter area, palpation elicits decreased fremitus. Auscultation reveals sonorous râles over the entire chest.



The right elbow joint is very much enlarged and tenderness is exquisite. The part is held in semi-extension, at an angle of about ninety degrees and all attempt to extend the arm or to examine it with any degree of precision is resisted most vehemently by the patient. The examination in the ward was, therefore, worthless as far as giving any information regarding the pathologic process was con-

cerned, but an x-ray examination revealed what was diagnosed as a syphilitic periostitis.



We had already suspected this, for with a history of presumable infection, coupled with a positive Wassermann reaction, we were scarcely for a moment in doubt. The temperature which was 98 4-5 on admission ranged between 98 2-5 and 99 3-5. The sputum was always negative for tubercle bacilli although pneumococci were present in large numbers.

As soon as the report on the Wassermann reaction was received, the patient was placed on 4 grams of mercurial ointment a day. No benefit followed its use and later in addition Hg Cl, 0.003 gram and potassium iodid 1 gram were ordered. Instead of improving the patient said he was considerably worse and soon complained of loose teeth and much "slobbering." For some time we had become suspicious of the "syphilitic" nature of the bone or joint lesion though never doubting for a moment that the patient was a syphilitic. When no improvement followed the active use of the anti-syphilitic measures the latter were finally cut on the 20th of December, 1912, and 1.2 grams of strontium salicylate every third hour were prescribed. Scarcely a day had passed before the patient offered the information that he felt much better and persisting with the salicylates in these large doses, we were finally rewarded, at the end of a week by the patient's subjective recovery. Examination of the arm showed that the swelling had almost entirely disappeared, there was no pain on pressure, and function was so nearly normal that the patient refused to remain in the hospital, and left January 6, 1913, cured.

This case seems to me to carry with it a strikingly important and valuable lesson, namely, that not every symptom or change of structure in a subject with syphilis (history of infection and positive Wassermann reaction) is caused by or is a syphilitic process. We are too prone in the event of a positive Wassermann test to lose all sense of perspective and with our eyes and attention fixed on the one diagnosis, overlook a very common easily recognizable condition. Such is the reproach with which we have castigated ourself in this case. I believe that the patient under consideration had nothing more or less than an attack of acute articular rheumatism, despite the report of the skiagrapher that the x-ray examination revealed a syphilitic periostitis. It is not unlikely that the condition was a rheumatic periostitis. It was not until after the patient left the hospital that it occurred to us that a second x-ray after subjective and objective cure, might be of value. Despite letters to the patient's address in the South, and despite inquiries at his address in Philadelphia, the man was lost sight of and it was impossible to make any further examinations.

Book Reviews.

Malaria. Cause and Control. By WILLIAM B. HERMS, M.A. Illustrated. New York: The Macmillan Company. 1913.

This book is based on four years' practical study of malaria in California. It is essentially a brief account of the mode of transmission of malaria and a detailed exposition of the various methods of mosquito extermination. It is a valuable supplement to the more purely academic text-books on the disease, and in its application of scientific knowledge about malaria constitutes a genuine contribution to practical preventive medicine.

Mendel's Principles of Heredity. By W. BATESON, M.A., F.R.S., V. M.H. New York: G. P. Putnam's Sons. 1913.

The original edition of this valuable work was reviewed in the issue of the JOURNAL for July 28, 1910 (Vol. clxiii, p. 138). Its object was "to give a succinct account of discoveries in regard to heredity made by the application of Mendel's method of research." With this, the first three-fourths of the volume is concerned. The remainder consists of an excellent brief biographical notice of Mendel, a translation of his two important papers on hybridization and on *hieracium*, and an admirable alphabetic bibliography of 316 titles. In this third impression there has been added to the first part a series of appendices aiming to acquaint the reader with the nature of the principal advances made in Mendelian analysis during the past three years, especially in regard to coupling, repulsion, and the heredity of sex. A complete rewriting of the book is promised by the author, and will be awaited with interest by all who have appreciated the scholarly merit of the present production.

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MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

The one hundred and thirty-second meeting of the Massachusetts Medical Society, held at the Copley-Plaza Hotel in Boston, last week, was largely attended by members of the society from every part of the state. The meetings were rendered more enjoyable through fortunate weather conditions, and more profitable by a program which concentrated attention upon certain important fields of medicine.

The clinics at the various hospitals were largely attended; this custom should become permanent and be extended so far as the time permits. It offers practical demonstration of progress in medicine which the formal reading of papers can hardly succeed in doing; and this, no doubt, should prove an increasing attraction to those members of the society whose activities or location prevent intimate acquaintance with these matters. The various section meetings, adopting the plan of the past few years, were given over largely to the discussion of certain restricted, but important topics from various viewpoints. This again, is a custom which should be encouraged. Dr. Harvey Cushing's Shattuck Lecture on Diabetes Insipidus and the Polyurias of Hypophyseal Origin was a further elaboration of his well known work on the hypophysis. It was unfortunate that lack of space prevented many from hearing this lecture. Dr. Homer Gage, of Worcester, in the annual discourse, made some admirably practical remarks which should be of service to the profession generally on Some Abuses in Surgical Practice. Dr. Charles G. Stockton of Buffalo, N. Y., and Dr. John H. Gibbon, of Philadelphia, as guests of the society, were the chief speakers in a symposium on diseases of the gall bladder, this meeting being held at the Boston City Hospital.

An innovation this year was the annual dinner held at the Copley-Plaza Hotel, instead of, as has hitherto been the custom, at Mechanics Building. It will be generally agreed that the change was desirable, not only from the point of view of food, but also and more important because the character of the room was such that the after dinner speaking could be well heard. It is clearly a matter of difficulty to secure an auditorium sufficiently large to permit of comfortable speech-making. This apparently was attained by the arrangement this year. The president of the Society, Dr. Bowers, in introducing the speaking, gave certain statistics of the Society regarding membership, which were on the whole, gratifying. It appears that the total membership is now 3,432, but, as Dr. Bowers pointed out, many are still eligible who have not yet applied. He discussed at some length the matter of legal services for physicians, the workman's compensation act, instruction of the laity in medical matters, and paid a just tribute to the quiet but effective work which has been done by women physicians in this direction. Dr. Bowers very feelingly closed his remarks by allusion to Dr. M. H. Richardson and Dr. A. T. Cabot.

President Eliot, whose warm interest in all matters pertaining to medicine and medical education is generally known, was then introduced. In a reminiscent vein, he discussed the extraordinary changes which have taken place in the teaching of medicine during the past half century, dating from the time when he himself was a lecturer on chemistry to the medical class in 1855 and '56. President Eliot finds in the inductive method, with the natural training of the senses, the most important element in the education of the future; and this he maintained, has been most completely attained in medicine. He spoke of the great development of the laboratory sciences, and found in that a demonstration of his thesis, all in sharp contrast, for example, to the situation in China, where an intellectual people has as yet not adopted the inductive method, and has, therefore, gained no special skills.

Mr. Robert L. O'Brien, editor of the Boston *Herald*, pointed out in humorous vein the funda-

mental differences between medicine as a profession and all others, and particularly the difference between the attitude of the daily press and that of medical publication. Recognizing these differences and the impossibility of reconciliation of method, he was still altogether hopeful that the daily papers may have an increasingly important function to fulfil in the diffusion of medical knowledge, and through a completer cooperation with physicians, may bring about a better understanding between the laity and the profession in matters of common interest. In this, Mr. O'Brien no doubt struck a very modern note. There can be no question that if the daily press and the medical profession can work together without distrust, a definite advance in preventive medicine may be made.

Dr. Charles E. Stockton and Dr. John H. Gibbon, guests of the society, both spoke in appreciation of their reception in Boston. Dr. Stockton felt, and we think with justice, that President Eliot's devotion to the inductive method should not be carried too far and implied that the human relationships existing between individuals should not be lost sight of in our endeavor to arrive at results through induction alone. There is still a place for the deductive method.

OBSERVATIONS ON MOSQUITOES.

FOR the past three years there has been noticeable at this season in parts of Boston near the Charles River Basin an unusual number of very large, attenuated, and relatively inert mosquitoes, who cluster on window-screens and lead a passive, apparently non-predatory existence. These creatures are for the greater part male *Culices*, coming presumably from breeding-grounds along the new esplanade and waterfront. This year their number has been much larger than hitherto, and the observation of some of their habits has been matter of considerable interest.

They began to appear about the first of June, clustering on window-screens as above described in the early morning, and in the evening occasionally invading the house through open windows to fall ready victims to the fascinating phototactic peril of the lamp. Their flight is silent, they have no sting and no visible means of sustenance. They are inoffensive as Quakers, and, if they escape the moth's fate, die of inanition after a few days.

These creatures rapidly increased in number, and on Sunday evening, June 8, occurred their principal marriage flight. Throughout the Back Bay the air became suddenly thick, at about the level of fourth story windows, with countless swarms of mosquitoes, in pulsating but non-progressive flight, associated with a fine delicate, high-pitched musical hum, presumably due to the females now observed for the first time to be associated with the males. Looking through this animated cloud towards the sunset sky, one could see from moment to moment couples meeting and falling obliquely through the swarm, like souls in the Inferno plunging to Tartarus.

Destruction was indeed the fate of most of the males on this occasion. Apparently the flight continued for several days, after which, alongshore, the water of the river might be observed strewn with their dead bodies. Those who survive the nuptials, presumably from finding no mate, continue to haunt our houses in an innocuous ghost-like existence, finally leaving their emaciated corpses like wraiths on study-tables and window-ledges.

The observation of these phenomena is not only interesting from a general biologic point of view, but affords another appropriate testimony to the truth of Mr. Kipling's now famous apophthegm.

A REMARKABLE GROUP OF NONOGENARIANS.

HARVARD COMMENCEMENT this season brings into notice a remarkable group of four nonogenarians, survivors of the class of 1838, who celebrate today the seventy-fifth anniversary of their graduation from college.

The oldest of these venerable men is the Reverend James Ivers Trecothick Coolidge, S.T.D., of Cambridge, the senior alumnus of Harvard, who was born in Boston on Nov. 1, 1817. He has been rector of several New England parishes and was for nine years headmaster of St. Mark's School, Southboro, Mass. Mr. Coolidge has recently passed through a serious illness; but has recovered from a bilateral pneumonia sufficiently to be about again, though not yet restored to his wonted vigor.

The second in age of this group is a physician, Dr. James Lloyd Wellington, of Swansea, Mass., who was born at Templeton, Mass., on

Jan. 27, 1818, the son of a clergyman. He received the degree of M.D. in 1842 from the Harvard Medical School, of which he is now the oldest living graduate. He settled immediately in Swansea, where he practised his profession continuously for 62 years, until his retirement in 1904, since when he has remained in active, alert, vigorous health. He is the senior Fellow of The Massachusetts Medical Society and the oldest physician in the United States.

The third of this group of nonogenarians is the Reverend Edward Augustus Renouf, S.T.D., of Keene, N. H., who was born in Boston on Nov. 15, 1818. He graduated from Andover Theological Seminary in 1842, and from 1843 to 1886 was rector of various new England parishes.

The fourth of the group is Mr. Jacob Weld Seaver, of Boston, born in 1820. He is a merchant and banker, and still attends directors' meetings as he has done for over fifty years.

These four venerable men are unusual examples of the durable possibilities of healthy, rational, active human life.

They have "lived to be

The last leaves upon the tree
In the spring."

Their example is full of shining significance, and to them is due the cordial regard and veneration of all on this Harvard anniversary.

MEDICAL NOTES.

London Death-Rates in April.—Statistics recently published show that the total death-rate of London for April, 1913, was 16.1 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20.2 in Bermondsey, a southern slum, and the lowest was 11.5 in Wandsworth, a much more populous but more hygienically situated southern suburb.

Birthday Honors for British Physicians.—The recent annual announcement of the King's Birthday Honors in England includes the names of several members of the British medical profession. Mr. William Arbuthnot Lane, surgeon to Guy's Hospital, is made a baronet, and knighthood is conferred on Dr. Thomas Evans Flitcroft, Dr. Andrew John Horne, Professor Edward Albert Schäfer, Dr. Herbert Smalley, Mr. Robert Henry Woods, and Major Edward Scott Worthington.

Smallpox in Stockholm.—It is reported that smallpox has recently been epidemic in Stockholm, and that in consequence so many persons have been vaccinated that the national supply of virus has been temporarily exhausted.

An Epidemic of Typhoid in Paris.—A recent outbreak of typhoid fever in the Latin Quarter of Paris has been traced to the error of a plumber, who connected a pipe leading from the Seine *eau non potable* with a drinking faucet in the exhibition hall of the Faculty of Medicine, where an international physical training conference had lately been held. The Temple of Hygieia should be the last place from which typhoid infection might be disseminated.

A French Ministry of Health.—Report from Paris on June 7 states that an urgent agitation for the establishment of a national French ministry of public hygiene has been initiated by M. Léon Mirman, the present director of public relief and hygiene of the ministry of the interior. The functions of a public health department are now distributed under five different ministers, with a considerable resultant waste of energy and duplication of labor and expense.

Tablet to the Memory of Dr. Musser.—A bronze tablet, designed by Dr. R. Tait McKenzie, has recently been presented to the University of Pennsylvania Hospital, in memory of the late Dr. John Herr Musser.

Canadian Medical Association.—The forty-sixth annual meeting of the Canadian Medical Association will be held next week in London, Ont., from Tuesday, June 24, to Friday, June 27, inclusive. At the general meeting on June 24 the address in gynecology will be delivered by Dr. T. S. Cullen, of Baltimore; and on June 25, the address in medicine by Dr. Llewellys F. Barker, of Baltimore. On June 26, Dr. A. J. Ochsner, of Chicago, will introduce a symposium on "Medical and Surgical Aspects of Diseases of the Thyroid"; and on June 27, Dr. Frank Billings, of Chicago, will conduct a medical clinic before the Association, and Dr. John B. Murphy, of Chicago, will give a lantern lecture on "Surgery of the Bones and Joints."

Chicago Medical Society.—The Chicago Medical Society announces a meeting of alienists and neurologists to be held in that city from

Monday, June 23, to Thursday, June 26, inclusive, for the discussion of mental diseases in their various phases. At the meeting held in April, 1912, a resolution was offered dealing with the prevention of insanity, and the various forms of delinquency. It is hoped that at this meeting after a full discussion a definite plan can be formulated and recommended to the several state legislatures.

ANTI-VIVISECTION IN PENNSYLVANIA.—In the issue of the JOURNAL for June 12 (page 894), we noted that the Pennsylvania Society for the Prevention of Cruelty to Animals was about to prosecute five members of the teaching staff of the University of Pennsylvania Medical School for alleged inhumanity in their treatment of laboratory animals. Report from Philadelphia now states that on June 14 warrants were issued for their arrest.

BOSTON AND NEW ENGLAND.

FINAL DEFEAT OF THE MEANEY MILK BILL.—In last week's issue of the JOURNAL (p. 895) we noted that Governor Foss had returned the Meaney Milk Bill to the General Court without his approval, but that the House had passed the measure over his veto. In his message on the bill, the Governor wrote in part as follows:—

"I have given to this bill the most careful consideration; but I find arrayed against it a consensus of sentiment, not only on the part of the public and the milk producers themselves, but of health officials and others who have given protracted study to the subject of milk supply and regulation.

"Moreover, my own judgment is that the bill is bad. Not only is it grossly unfair for Massachusetts to discriminate against the producers in other New England States, but if she takes this step, then she must expect the immediate establishment of severe reprisals. Massachusetts products which are exported into other states will be discriminated against in retaliation for this measure, and in the long run this policy, which in itself is reprehensible, will prove injurious to the state and to the agricultural producers within this Commonwealth.

"I find that all the arguments urged in favor of the bill can be met by proper regulations, either state or local. If the milk supply of any community is not satisfactory, that community is at liberty to make, and should make, regulations to meet the situation. This is done with notable success in Boston, and similar measures should be taken by other large communities in Massachusetts. The Boston Board of Health sends its inspectors to all points from which milk is shipped into Boston, whether out of the state or within; and milk cannot be sold unless produced under conditions acceptable to the Boston Board of Health, transported in a manner to maintain its purity and freshness, and sold in establishments which are made to conform to all necessary hygienic requirements.

"New England is, geographically, historically and in all human interests, a unit. Our legislation should be so drafted as to conserve this essential unity. Measures such as the present bill, which tend to break up this unity, are essentially vicious. Even if the bill would not result in the establishment of reprisals by the other states, Massachusetts should not be the first to set up measures hostile to her neighboring states. The obligation of maintaining this New England unity rests most of all upon Massachusetts, for in Boston we have the common metropolitan centre of the entire New England region. If we now erect barriers against the freedom of interstate commerce, we must expect to see Boston lose her metropolitan character in respect to New England, and to see Massachusetts also lose her position of leadership—a position which all the New England communities now accord her, by reason of her capital, her industrial strength, her location and the fact that she possesses the greatest city and the principal seaport in New England.

"I take this occasion to say also that in any legislation, no matter how advantageous its ends may seem, no benefit is to be expected unless it is made to conform to our highest standards of equity and justice. In this respect the present bill fails, and for that reason, if for no other, it should not become a law."

Despite the action of the House, the Senate on June 10, by a vote of 19 to 17, sustained the Governor's veto; so that the Meaney Milk Bill is finally defeated and the milk situation of Massachusetts remains *in statu quo* until next year's session of the legislature.

EVENING TUBERCULOSIS CLINICS.—On Monday of this week, June 16, was held at the out-patient department of the Boston Consumptives' Hospital, 13 Burroughs Place, the first of a projected series of night clinics for the diagnosis and treatment of phthisis among the poor.

"These clinics will be limited to residents of Boston, who, because of employment, are unable to attend in the daytime. They will be open at 7 p. m. each Monday."

A CENTENARIAN.—Mrs. Erastus Winslow, who died recently at Charlton, Mass., is said to have been born in that town in May, 1813, the youngest of a family of five daughters. Her only surviving descendant is a grandson.

Two Living Centenarians.—A year ago we noted in the Journal the celebration on June 12 of the supposed centennial anniversary of the birth of Mrs. Sarah Cox, of Malden, Mass., and Mrs. Benjamin de St. François, of Medford, Mass. It gives us great satisfaction to learn that both these venerable women have survived the vicissitudes and perils of another year, and observed last week their one hundred and first anniversary in excellent health.

Foxborough State Hospital.—The recently published annual report of the trustees of the Foxborough State Hospital, administering the Norfolk State Hospital, records the combined work of these institutions for the year ended Nov. 30, 1912. During this period preparations have been made for the transfer from Foxborough to Norfolk of all patients except the insane, a transfer which will be completed in the fall of 1913. The patients to be transferred are the inebriates, to whom the new institution at Norfolk is to be devoted. Of these 1135 were under treatment during the year covered by the report, 596 being voluntary commitments or recommitments.

Worcester Board of Health.—The recently published annual report of the trustees of the Worcester Board of Health records the activities of that body for the calendar year 1912. The total death-rate for this period was 15.45, or 13.22 exclusive of non-residents. There were 300 cases of pulmonary tuberculosis, with 150 deaths; 411 cases of diphtheria, with 26 deaths; 329 cases of scarlet-fever, with 11 deaths; and 70 cases of typhoid fever, with 5 deaths. The birth-rate was 26.9 per 1000, the number of deaths under one year 12.92% of the births.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending June 10, 1913: Diphtheria, 42, non-resident 4; scarlatina, 46, non-resident 8; typhoid fever, 4; measles, 163, non-resident, 1; tuberculosis, 76, non-resident 2. The death-rate of the reported deaths for the week was 14.36.

Carney Hospital Jubilee.—On Monday of last week, June 9, was celebrated with appropriate observance the fiftieth anniversary of the opening of the Carney Hospital in its building on Dorchester Heights, South Boston.

"Andrew Carney was the founder of the hospital and the foundation amounted to $75,000. With this money, the Howe estate was purchased and presented to the Sisters of Charity of St. Vincent de Paul, and under the direction of Sister Ann Alexis, the building was equipped as a hospital. The first patient was received on June 9, 1863.

"In 1865 the hospital was incorporated under the laws of Massachusetts and its property placed in the hands of the Carney Hospital Corporation. At this time plans for the present building were projected and one wing and a part of the chapel building were erected. Sister Ann Alexis continued superior till 1868, when the care of the institution devolved upon Sister Ann Aloysia, and a few months later the duties of superior became incumbent upon Sister Simplicia.

"Under the supervision of Sister Gonzaga the addition was completed and opened April 1, 1891, at a cost of $148,082. In 1901 the new out-patient building on the corner of Old Harbor and Dorchester streets was completed, at a cost of $91,000. Of this amount the Commonwealth of Massachusetts contributed $10,000. A dental clinic for school children was equipped and opened in June, 1912, and already the patronage of this clinic has become so numerous that the appointment of additional assistants is imperative.

"In 1910, the superiors of the Sisters of Charity called Sister Gonzaga to take charge of the St. Agnes Hospital, Baltimore, Md., and shortly after, Sister Raphael was located as superior of the Carney Hospital.

"Fifty years' statistics of the hospital are as follows: Patients admitted to the hospital, 70,069; patients gratuitously treated, 29,083; patients paying in part, 15,231; patients paying in full, 25,755; total number of treatments of patients in out-patient department, 1,593,000. Thus the hospital has grown in these fifty years from having treated fifty-three patients in 1863 to the treatment of 3727 in 1912."

NEW YORK.

Columbia University Commencement.—At the 159th annual commencement of Columbia University, held on June 4, 2,141 students were graduated, a larger number than in any previous year; 101 received the degree of Doctor of Medicine, 7 that of Doctor of Pharmacy, and 23 that of Pharmaceutical Chemist. Among the distinguished men upon whom the degree of Doctor of Science was conferred were Dr. W. C. Gorgas, "described as illustrating more completely than has perhaps fallen to the lot of any other man the power of modern science to combat and to prevent disease," and Dr. Alexis Carrel, "leading the way with amazing skill, rich imagination, and exceptional scientific equipment into new fields of surgical research."

At the commencement of New York University, on June 4, there were 75 graduates in the medical school, and 6 in that of veterinary surgery.

DEMONSTRATION FOR SCHOOL CHILDREN.—In Central Park, on June 6, there was given the largest demonstration for school children ever held, ten thousand small boys from the public schools of all the boroughs of the city taking part. It was arranged under the auspices of the Public Schools Athletic League, with the cooperation of the education and park departments and the board of aldermen, to show the results of physical and hygienic training in the public schools. There were present as spectators many prominent persons, including representatives of the Playground Association of America, the Parks and Playgrounds Association, and the Russell Sage Foundation, and the exercises were in charge of Dr. C. Ward Crampton, director of physical training in the schools. In addition to engaging in various athletic sports, the boys went through deep breathing and other body exercises in a manner reflecting great credit on themselves and their teachers. Gen. George Wingate, president of the Athletic League, states that when the League was first started everyone said that it would be impossible to make athletes out of the boys of the East Side tenements, as they were extremely poor and took no interest in anything of the kind; yet for three years in succession the championship of all the public schools of the Greater City of New York, covering every branch of athletics on track and field, has been won by School No. 62, which is located in the heart of the crowded East Side, Manhattan, and 90% of the pupils of which are of Russian-Jewish parentage.

APPOINTMENT OF DR. KIEB.—Dr. R. F. C. Kieb, for the past three years first assistant physician at the Dannemora State Hospital, has been appointed superintendent of the State Hospital for the Criminal Insane at Matteawan, in place of Dr. John Russell, resigned. Dr. Kieb, who was graduated from Cornell University Medical College in 1904, stood first on the civil service list one year ago, from which Dr. Russell, who stood third, was appointed superintendent.

NEW MILK STATIONS.—Nathan Straus, who now maintains seven milk stations which are kept open throughout the year, on June 1 opened nine additional stations for the summer season.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 31, 1913.

1. *MORSE, J. L. *Whooping-Cough. A Plea for More Efficient Public Regulations Relative to the Control of This Most Serious and Fatal Disease.*
2. *MAY, E. S., AND HEIDINGSFELD, M. L. *Basic Fuchsin in Chronic Leg Ulcer.*
3. *FISCHER, M. H. *The Treatment of Nephritis and Allied Conditions.*
4. LITCHFIELD, L. *Acute Posterior Ganglionitis Simulating Surgical Conditions in the Abdomen.*
5. MONTGOMERY, D. W., AND CULVER, G. D. *A Comparison Between Zoster of the Face and That of the Leg, as Shown in Two Cases Recently Observed.*
6. *WILLIAMS, F. H., AND ELLSWORTH, S. W. *Treatment of Superficial New Growths by Pure Radium Bromid.*
7. BLACK, C. E. *Method of Bone-Plating.*
8. NEUHOF, H. *An Operation for Ventrosuspension by the Round Ligaments.*

1. Morse shows up facts about the fatality of whooping-cough not generally appreciated. In the United States for 1911 this was 11.4 per cent., ranking next to scarlet fever, measles and diphtheria. This mortality occurs in children under five years of age. Morse strongly urges drastic measures for it, making it everywhere a reportable disease, with severe penalty for failure to report, and for more rigid quarantine and isolation of those affected.

2. May and Heidingsfeld are enthusiastic over the use of basic fuchsin as a therapeutic remedy of great value in chronic leg ulcers.

3. Fischer's article on nephritis is valuable as a latest word on the treatment of this condition. The article will bear study.

6. Williams and Ellsworth believe that pure radium bromid is a harmless, painless and efficient method of treating early superficial new growths. The cosmetic results are excellent. For keloids, unless extensive, radium is by far the best treatment known. [E. H. R.]

JUNE 7, 1913.

1. *KOPLIK, H. *Meningitis of the Epidemic Type in Children Below Two Years of Age.*
2. *HARRINGTON, T. F. *Prevention of Disease vs. Cost of Living.*
3. *WOODS, H. *Wood-Alcohol Blindness.*
4. MOON, V. H. *Experimental Immunity in Relation to the Agglutination Reaction in Typhoid.*
5. *LEWIS, B. *Where Is the Fundus of the Bladder?*
6. NELSON, R. M. *Rarity of Sarcoma of Sclera. Report of a Case with Removal and No Recurrence.*
7. MCDONALD, E., AND KRIEGER, W. A. *Bilateral and Multiple Ectopic Pregnancy.*
8. CORBUS, B. C. *Erosive and Gangrenous Balanitis. The Fourth Venereal Disease. A Further Report.*
9. SUTTON, R. L. *The Diagnosis and Treatment of Seborrheic Keratoses of the Lip.*

10. HOSKINS, R. G., AND MCPEEK, C. *The Effects of Adrenal Massage on Blood-Pressure.*
11. COLLINS, J. *The Possible Relationship of Organic Diseases of the Nervous System to Riggs' Disease.*
12. TUNNICLIFF, R. *The Spirochete Associated with Infections of the Accessory Sinuses.*
13. CARY, G. F. S. *New and Simple Apparatus for Salvarsan Administration.*
14. BUCHBINDER, J. R. *Retroperitoneal Rupture of the Appendix with Extravasation of Pus into and Gangrene of the Entire Thigh.*
15. KLEINER, I. *Torsion of the Spermatic Cord.*
16. ZEUCH, L. H. *Incontinence of Feces (Non-Organic.)*
17. JONES, E. M. *Modified Sheep-Shears Useful in Surgery.*
18. ADAMS, G. S. *Another Case of Spirotrichial Infection in Man.*

1. Koplik emphasizes the great importance of early diagnosis in meningitis in children under two years, and especially of not mistaking a mild otitis media for the more serious condition.

2. Harrington's article is of great practical importance and worth study from this viewpoint.

3. Woods warns against the great danger of blindness resulting from the use of Jamaica ginger and many flavoring extracts and patent medicines which contain wood alcohol.

5. Lewis very rightly corrects the much misused term, the fundus of the bladder, which is its base and not its summit or top, as the term is commonly used. [E. H. R.]

THE LANCET.

MAY 10, 1913.

1. *HILL, L. *A Lecture on the Physiology of the Open-air Treatment.*
2. *HILL, L., AND MUECKE, F. F. *Colds in the Head and the Influence of Warm Confined Atmosphere on the Mucous Membrane of the Nose and Throat.*
3. JARDINE, R., AND KENNEDY, A. M. *Three Cases of Symmetrical Necrosis of the Cortex of the Kidneys Associated with Puerperal Eclampsia and Suppression of Urine.*
4. *DIXON, W. E. *Alimentary Toxemia.*
5. *FAGGE, C. H. *Chronic Intestinal Stasis.*
6. GRAY, H. M. W., AND ANDERSON, W. *Remarks on Abnormal Intraabdominal Developmental Adhesions.*
7. *WEBER, F. P. *On the Prognostic Significance of Secondary Polycythemia in Cardio-pulmonary Cases.*
8. LUKER, S. G. *Difficult Labors Caused by Fetal Ascites.*
9. CAMPBELL, H. *Man's Mental Evolution, Past and Future.*

1. Hill in an interesting article discusses the chemical state of the air, the effect on the body of excess of carbonic acid, diminution of oxygen and the supposed existence of organic poisons in expired air.

This has never been confirmed by experiments. He describes the influence on the imagination of bad smells. He considers the influence of warm confined air on the nasal mucous membrane and the influence of open and confined air on metabolism. He discusses the increase of tuberculosis in confined spaces and the special importance of moving air. He believes the whole effect of open-air treatment is due to the movement, temperature and moisture of the air and has nothing to do with its chemical properties.

2. Hill and Muecke show how the mucous membrane of the nose becomes tinged and red when in a warm, moist atmosphere, and later shrinks and becomes pale in a cool atmosphere. They describe the relation of such changes to infections causing "colds in the head."

4. Dixon discusses alimentary toxemia from a chemical point of view, describing the complex substances formed by putrefaction in the alimentary canal.

5. Fagge believes that intestinal stasis is generally due to a pathological condition of the lower ileum, evolutionary in origin, and that in marked cases surgical treatment is required.

7. Weber discusses the prognostic significance of polycythemia in cardio-pulmonary cases, *i.e.* cases of chronic bronchitis and emphysema with myocardial weakness. He believes that the outlook is exceedingly grave at the stage of the disease when cyanosis and a great degree of polycythemia become striking clinical features. [J. B. H.]

MAY 17, 1913.

1. *WILLIAMSON, K. *Some Points in Determining the Signification of Albuminuria in Pregnancy.*
2. GOODHART, J. F. *Alimentary Toxemia.*
3. LANG, W. *The Influence of Chronic Sepsis upon Eye Disease.*
4. *LANGMEAD, F. *Relationship of the Thyroid Gland to Alimentary Toxemia.*
5. TODD, T. H. *Indications of Nerve Lesion in Certain Pathological Conditions of Blood Vessels.*
6. *GRAY, H. M. W., AND ANDERSON, W. *Remarks on Abnormal Intra-abdominal Developmental Adhesions.*
7. WYNTER, W. E. *Chloretone Overdosage.*
8. TURNER, J. A. *The Bacteriology of Cholera and Its Relation to the Spread of the Disease from the Point of View of the Health Officer.*
9. CROWE, H. W. *A Contribution to the Etiology of Rheumatoid Arthritis.*
10. POTTAN, A. B. *A Note on the Use of Vaccines in the Treatment of Rheumatoid Arthritis.*
11. SWIETOCHOWSKI, G. DE. *A Case of Volkmann's Ischaemic Contracture of the Hand.*
12. ARMSTRONG, W. E. M. *A Case of Gonorrheal Warts on the Face Successfully Treated by a Vaccine.*
13. BREND, W. A. *The Futility of the Coroner's Inquest.*
14. CAMPBELL, H. *Man's Mental Evolution, Past and Future.*

1. Williamson discusses the toxemia of pregnancy, source of the toxins, demonstrations of anti-bodies, etc. He then takes up albuminuria associated with chronic nephritis in pregnancy, the difficulties of diagnosis and the question of acidosis in pregnancy toxemia with relation to the alkalinity of the blood. He warns against using chloroform in these cases and likewise against calomel as a purge and the use of mercurial antiseptics. Infusions of sodium bicarbonate and glucose by mouth or rectum are advisable in cases of acidosis.

4. Langmead believes the thyroid gland exercises a share in counteracting internal (and other) intoxications. He believes that such an effort on the part of the gland is one cause of its enlargement.

6. Gray and Anderson discuss what they call developmental adhesions. These, Lane believes to be the result of intestinal stasis, while the writers believe them to be evolutionary in nature and the cause of intestinal stasis. They discuss this subject at length in an article profusely, though poorly, illustrated. [J. B. H]

BRITISH MEDICAL JOURNAL.

MAY 10, 1913.

1. *SONITAR, H. S. *A Lecture on Intussusception.*
2. *MCGAVIN, L. *On Transverse Colostomy as the Operation of Election.*
3. MITCHELL, J. E. *Urachal Fistula.*
4. RICHARDSON, W. G. *Enchondroma of the Manubrium Sterni Successfully Removed by Operation.*
5. *COLLINS, J. S., AND BRAINE-HARTWELL, C. *A Case of Abdominal Aneurysm with Unusual Features, Operated on by Means of Colt's Apparatus.*
6. WHEELER, W. I. DEC. *Cheilotomy for Crippling Traumatic Arthritis of the Hip Joint.*
7. SHAW, B. H. *The Interneuronic Synapse in Disease.*

1. In this lecture Sonitar describes the anatomy, causation, varieties, methods of growth and pathological changes in intussusception. He discusses this condition in infants, its symptoms and treatment and then considers it in adults and children.

2. McGavin gives the details of 26 cases in which transverse colostomy was performed. He claims for this operation the following points of advantage, which he discusses: (1) Good sphincter control. (2) Firm support for belt and plugs. (3) Freedom from prolapse. (4) Accessibility. (5) Good spur formation. (6) Removal to a distance from site of growth.

5. This is a description of an interesting but unsuccessful attempt to wire an abdominal aneurysm.

[J. B. H.]

MAY 17, 1913.

1. *MORRIS, M. *The Internal Secretions in Relation to Dermatology.*
2. HORDER, T. J. *A Lecture on Some Points in the Early Diagnosis of Cancer of the Stomach.*
3. WHERRY, G. *An Instance of Large Ureteral Calculus and Some Other Cases of Calculi.*
4. BANKART, A. S. B. *Treatment of Congenital Dislocation of the Hip.*
5. STREET, A. *A Series of Cases of Parotid Tumors.*
6. *JONES, D. W. C. *Chronic Arthritis. Therapeutic Evidence of the Incidence of Streptococcal Infection.*
7. SIMON, R. *Sequel of a Case of Cardiolysis.*
8. JOHNSTON-LANIS, H. J. *An Analysis of a Series of Cases of Hypertension and Hypotension Treated at Vittel.*
9. DAVIS, H. *X-rays in the Treatment of Diseases of the Palm.*

1. Morris discusses the effect of thyroid secretion and thyroid extract upon certain skin diseases, such as psoriasis, ichthyosis, cheloid, warts, acne and rhinophyma. He then describes the cutaneous manifestations of myxedema and thyrotoxicosis.

6. Jones describes 20 cases of arthritis. In 8 of these he believes that he has sufficient evidence that the arthritis resulted from a streptococcal infection originating in the intestinal tract. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 20. MAY 20, 1913.

1. CONRADI. *A New Principle for Selective Media, and Its Application in Diphtheria.*
2. GIEMSA, G. *The Chemo-therapy of Infections Caused by Spirochete.*
3. CAAN, A. *Experiments with the Use of Thorium Chloride Given Locally in Mouse Carcinoma and Rat Sarcoma.*
4. VULPIUS, O. *Surgical Tuberculosis Treated by Sunlight.*
5. ZIEGLER. *A New Method for the Quantitative Determination of Urates in Blood Serum.*
6. STANGE, B. *The Biological Diagnosis of Pregnancy.*
7. *JÖDICKE, P. *The Differential Diagnosis of Convulsions by the Blood Picture.*
8. *ZIMMERN, Y. *Salvarsan by Injection or Infusion.*
9. DUHOT, R. *A New Syringe for the Injection of Concentrated Neosalvarsan Without Air.*
10. *MOKRZECKI. *A Case of Anthrax Treated by Salvarsan.*
11. JACOB, L. *Myositis.*
12. GROEDEL, M. *Experiments with Hard Roentgen Rays.*
13. STAÜBLI, C. *Simultaneous Temperature Measurements and Their Clinical Significance.*
14. SCHLOSSMANN, A. *Adolf Baginsky.*
15. ALLEMANN, A. *John Shaw Billings.*

7. Jödicke has made white counts on the blood of 52 epileptic patients and of 4 hysterical patients after convulsions. All of the epileptic cases showed a marked leucocytosis. The highest figures were obtainable immediately after the convulsion, returning to normal within ten or twenty minutes. The leucocytes of the hysterical cases were always within normal figures. These observations agree with other authors. Jödicke believes that this may be an important point in differentiating true epilepsy from epileptiform convulsions of an hysterical or other nature. The cause of the leucocytosis has been assigned to contractions of the spleen or to the effect of the violent muscular effort brought on by the seizure. Jödicke considers that in addition, the leucocytosis may be a protective reaction of the organism against toxins from internal metabolism set free by the epileptic attack.

8. Zimmern has injected 78 patients with salvarsan or neosalvarsan in a concentrated solution, of which eight or ten c.c. contained 0.4 or 1.5 of the drug. The injections were made slowly; 147 single injections were given. Fever followed in 27 cases, 18 of which were of latent syphilis. Vomiting and diarrhea followed in 39 cases, of which 26 were of latent syphilis. The local reaction was so intense that injury to the wall of the vein by the concentrated solution was suggested. The material used did not afford positive information as to the clinical results of such treatment. However, Zimmern received the impression that the curative effect of the concentrated solution was superior to that of the drug as usually given. This was borne out by the fact that in the few cases studied, the total excretion in urine of arsenic, following its injection in concentrated solution, was considerably less than in the urine of control patients who had received the drug in higher dilution. Zimmern concludes that the administration of salvarsan by this method is not without objection. Ravant, Strauss and Stern have obtained different results.

10. Mokrzecki reports a case of anthrax pustule treated by salvarsan. In addition the pustule was cauterized. Blood culture made at the time of the salvarsan injection, was negative. The recovery was more rapid and easy than in similar cases treated by cauterization alone. Mokrzecki feels that the salvarsan had some effect. [R. F.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

MAY 22, 1913.

1. ZANGEMEISTER, W., VIERECK, AND VON BEHRING, E. *Third Communication on von Behring's New Diphtheria Prophylactic.*
2. GILDEMEISTER, E., AND BAERTHLEIN, K. *Bacteriologic Investigations in Infants with Bladder Trouble.*
3. STEINER, G. *Histopathologic Findings in the Central Nervous System of Syphilitic Rabbits.*

4. Tsuzuki, M. *Antiluetin, a New Means of Combined Therapy.*
5. Tsuzuki, M., Ichibagase, K., Hagashi, H., and Htono. *The Therapeutic Action of Antiluetin.*
6. Rosenheim, T. *Severe Chronic Colitis.*
7. McNee, J. W. *The Question of the Cholesterin Content of the Bile During Pregnancy.*
8. Aschoff, L. *Comment on the Above Work.*
9. Baum, H. L. *Traumatic Venous Thrombosis in the Upper Extremity.*
10. Lissmann. *A Case of Rare Disturbance of Potency.*
11. Nochte. *The Treatment of Tabes, Especially Its Rudimentary Form, and Its Relations to Psychopathic Disturbances.*
12. Engelen. *Striking Phenomena in a Case of Uremia.*
13. Bierer. *Crédé's Grasp and Uterine Inversion.*
14. Kopsch, F. *Two Hundred Years of Berlin Anatomy.* (*Conclusion.*)

The Sei-I-Kwai Medical Journal.

May, 1913.

1. *Sewaki, H. *Third Report on the Method of Increasing the Body Weight.*
2. Sewaki, H. *On the Action of "Masuisin B."*
3. Sewaki, H. *Sixth Report on the Method of Increasing the Body Weight.*
4. Morita, M. *On the Pupillar Changes in Paralytic Dementia.*
5. Yabe, T. *Infantile Beri-beri.*
6. Tazawa, N. *On the Nutritive Defect Caused by Rice Flour.*

1. Continuing his report on methods of increasing the body weight, Sewaki enumerates a number of substances which he has found to have this effect, with others which he has found to reduce weight.

[R. M. G.]

Miscellany.

MASSACHUSETTS MEDICAL SOCIETY.

Meeting of the Council.

The annual meeting of the council was held at the Copley-Plaza Hotel, Boston, June 10, 1913, at 12 o'clock noon, the president, Dr. W. P. Bowers, being in the chair and one hundred and twelve councilors present.

The records of the last meeting were read and accepted.

The names of the nominating committee were read by the secretary and the committee retired.

The treasurer read his annual report, and the secretary read the report of the auditing committee as follows:

The undersigned, a duly appointed committee, having examined the books of the treasurer, find them correctly cast and properly vouched, and also that he has in his possession the securities called for.

Charles J. White,
David N. Blakely.

Voted, To accept the treasurer's report.

The committee on membership and finance reported through Dr. Goss as follows:

The committee on membership and finance respectfully recommends, that the petitions of the following for change in their district membership be granted.

Thomas E. Chandler, from Norfolk to Suffolk.

George J. Ott, from Norfolk to Suffolk.

Francis H. Slack, from Norfolk to Suffolk.

Chares P. Sylvester, from Norfolk South to Norfolk.

That the resignations of ten Fellows be accepted, that eleven Fellows be placed on the retired list, and that four thousand dollars ($4000) of the balance in the treasury be distributed among the district societies.

Voted, To accept the report and adopt its recommendations.

Petitions from six former Fellows to be reinstated were read by the secretary, and committees were appointed to consider them.

Dr. Ernst, for the committee on medical education, submitted an extended report.

Voted, To accept the report and place it on file.

Dr. Withington, for the committee on state and national legislation, submitted a report.

Voted, To accept the report and place it on file.

On motion by Dr. F. C. Shattuck, a vote of thanks to Dr. Withington for his admirable report was passed unanimously.

Dr. M. W. Richardson submitted a report for the committee on public health.

Voted, To accept the report and place it on file.

The committee on the workmen's compensation act reported progress, through Dr. Meigs. It was recommended by the committee that this report be considered a report of progress and that the committee be continued and report in full in the fall, at the next meeting of the council; and it was so voted.

Dr. Homer Gage, chairman of the committee to revise the by-laws, submitted an amended draft of the by-laws, and explained that the draft submitted on May 10, 1913, to every Fellow of the society had been amended in several places, giving the substance of the amendments. On motion of Dr. Goss, it was

Voted, That the council endorses these by-laws and directs that they be submitted to the society at its next meeting for adoption.

On nomination by the president, the following committees were appointed for the ensuing year:

Of Arrangements, John Homans, Beth Vincent, W. W. Howell, J. D. Barney, E. L. Young, Jr., R. I. Lee.

On Publications and Scientific Papers, G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance, F. W. Goss, C. M. Green, A. Coolidge, Samuel Crowell, F. W. Taylor.

On Ethics and Discipline, J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.

On Medical Education and Medical Diplomas, H. C. Ernst, H. D. Arnold, C. F. Painter, H. W. Newhall, J. F. Burnham.

On State and National Legislation, C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone.

On Public Health, M. W. Richardson, M. J. Rosenau, W. I. Clark, A. L. Hamilton, E. H. Bigelow.

Drs. E. H. Stevens, of Cambridge, and F. Jonett, of Cambridge, were appointed delegates to the International Congress at London, England, August, 1913; and Dr. O. E. Johnson, of Winthrop was appointed delegate to the annual meeting of the British Medical Association at Brighton, England, July, 1913; and Dr. S. F. Haskins, of Cotuit, was appointed to fill the vacancy in the board of censors of the Barnstable District.

The nominating committee, consisting of J. H. Higgins, H. G. Wilbur, E. H. Noyes, H. E. Sears, C. P. Hooker, M. W. Pearson, D. C. Dennett, E. H. Stevens, S. Crowell, E. N. Mayberry, A. E. Paine, F. C. Shattuck, D. Harrower, and E. A. Sawyer, brought in the following list of officers, and they were elected by ballot:

President, Walter P. Bowers, Clinton.

Vice-President, Lyman A. Jones, North Adams.

Secretary, Walter L. Burrage, Boston.

Treasurer, Edward M. Buckingham, Boston.

Librarian, Edwin H. Brigham, Brookline.

Upon nomination by the nominating committee, Horace D. Arnold of Boston was appointed orator for 1914.

A letter from the New England Hospital Medical Society, calling the attention of the president of the Massachusetts Medical Society to the work of the women physicians of the state, Fellows of the society, acting under the committee for public health education among women of the American Medical Association, was read by the secretary; and it was

Voted, To place it on file.

Dr. Meigs, of Lowell, read letters from Dr. Emma E. Young-Slaughter and Dr. Blanche A. Denig with reference to the work of the committee for public health education among women, and Dr. I. J. Clark read a letter on the same subject from Dr. Denig to Dr. Symonds.

Voted, To place the letters on file.

A petition signed by forty-nine Fellows for a change in the boundary line between the Suffolk and Norfolk Districts was read by the secretary. On nomination by the president, the petition was referred to the following committee:

Homer Gage, President of the Worcester District.

J. S. Leard, President of the Norfolk District.

H. D. Arnold, President of the Suffolk District.

Dr. Hugh Cabot read a letter from Mr. Matthew Hale of the Boston *Journal,* stating that the *Journal* in line with its policy of furnishing clean, unbiased news to the public, refers all advertisements of patent medicines and questionable physicians to a medical board, of which Dr. Hugh Cabot is the head, for approval, the decision of this board being final. Dr. Cabot introduced the following resolution:

Having been advised of the policy recently inaugurated by the Boston *Journal* in regard to a censorship of medical advertisements, Be it

Resolved, That the council of the Massachusetts Medical Society heartily approves of and endorses the policy of the Boston *Journal* in the censorship of medical advertisements and believes this to be an important step forward toward the coöperation between the medical profession and the press in matters pertaining to the public health.

The resolution being put to a vote was passed unanimously.

Adjourned at 1.50 P. M.

WALTER L. BURRAGE, *Secretary.*

ANNUAL MEETING.

First Day's Proceedings. Meetings of sections were held in the Copley-Plaza Hotel, Boston, on Tuesday, June 10, 1013. The sections were officered and papers presented according to the following program.

MEETING OF THE SECTION OF MEDICINE.

Salon, Copley-Plaza, Hotel. 2.30 o'clock.

Officers of the Section of Medicine. Dr. Horace D. Arnold, Boston, Chairman. Dr. Theodore J. Eastman, Boston, Secretary.

Symposium on Nephritis.

1. The Classification of Nephritis from the Pathological Point of View (with lantern slide demonstration).—Dr. Frank B. Mallory, Brookline.

2. Clinical Functional Tests and Methods:
   a. Determination of Urinary Acidity.—Dr. Walter W. Palmer, Boston.
   b. The Phenolsulphonephthalein Test.—Dr. Edward L. Young, Jr., Boston.
   c. Selective Excretory Activities as Functional Tests.—Dr. Reginald Fitz, Boston.

3. Nitrogenous Waste Products in the Blood in Nephritis:
   a. Their Significance, and the Methods for Their Determination.—Dr. Otto Folin and Dr. William Denis, Boston.
   b. Their Clinical Application to Selected Cases.—Dr. Malcolm Seymour, Boston.

4. General Summary and Significance of Methods for Testing Renal Function.—Dr. Henry A. Christian, Boston.

There were 150 in attendance.

MEETING OF THE SECTION OF SURGERY.

Ballroom, Copley-Plaza Hotel. 2.30 o'clock.

Officers of the Section of Surgery. Dr. John T. Bottomley, Boston, Chairman. Dr. Robert B. Osgood, Boston, Secretary.

1. An Anatomical and Surgical Study of Peri-Cecal Membranes.—Dr. Michael F. Fallon, Worcester.

Discussion by Dr. J. C. Hubbard, Boston, and Dr. S. A. Mahoney, Holyoke.

2. The Relation between Gynecological and Nervous Diseases.—Dr. William P. Graves, Boston.

Discussion by Dr. W. L. Burrage, Boston, and Dr. Stephen Rushmore, Boston.

3. Observations on One Hundred Consecutive Operations for Chronic Appendicitis.—Dr. Ernest A. Codman, Boston.

Discussion by Dr. P. P. Johnson, Beverly, and Dr. J. B. Blake, Boston.

4. Certain Conclusions from One Hundred and Twenty-three Operations for Ulcer and Cancer of the Stomach.—Dr. Charles L. Scudder, Boston.

Discussion by Dr. F. B. Lund, Boston, and Dr. D. F. Jones, Boston.

5. The Value of the Roentgen Method in the Study of Chronic Appendicitis, and Inflammatory Conditions, both Congenital and Acquired, about the Cecum and Terminal Ileum.—Dr. Arial W. George, Cambridge, and Dr. Isaac Gerber, Boston.

There were 180 in attendance.

MEETING OF THE SECTION OF TUBERCULOSIS.

State Dining Room, Copley-Plaza Hotel. 2.30 o'clock.

Officers of the Section of Tuberculosis. Dr. J. F. A. Adams, Pittsfield, Chairman. Dr. John B. Hawes, 2nd, Boston, Secretary.

1. A General View of the Tuberculosis Problem in Massachusetts.—Dr. Lyman Asa Jones of North Adams.

2. The Tuberculosis Problem in Cities and Towns from the Point of View of Local Boards of Health.—Dr. Bradford Peirce, Cambridge.

3. The Need of Coöperation between Local and State Forces in Tuberculosis Work.—Dr. John B. Hawes, 2nd, Boston.

There was an attendance of 100.

The officers of the sections for the ensuing year were elected by the sections as follows:

Section of Surgery.—Chairman, R. H. Seelye, Springfield. Secretary, E. P. Richardson, Boston.

Section of Medicine.—Chairman, L. A. Jones, North Adams. Secretary, Gerald Blake, Brookline.

Section of Tuberculosis.—Chairman, A. C. Getchell, Worcester. Secretary, J. B. Hawes, 2nd, Boston.

The Shattuck Lecture was delivered in the Copley-Plaza Hotel, in the evening, by Dr. Harvey Cushing, subject, Diabetes Insipidus and the Polyurias of Hypophyseal Origin.

At the close of the lecture, there was a reception to the president and a popular concert, at which the attendance was about nine hundred.

Second Day's Proceedings. The exercises of the one hundred and thirty-second anniversary of the Massachusetts Medical Society were held at the Copley-Plaza Hotel, Boston, on Wednesday, June 11, 1913. The president, Dr. W. P. Bowers, was in the chair, and forty-four Fellows were present at the opening of the meeting.

The records of the last meeting were read and accepted.

The secretary announced that during the past year the society had lost 46 Fellows by death, 12 by resignation, and 44 by deprivation of the privileges of fellowship, making a total loss of 102. The society had gained 152 members (by restoration to fellowship, 6; new members, 146); making the total membership on that day, 3432.

Dr. Homer Gage presented an amended draft of the by-laws, and explained that they had been arranged in chapters and sections according to the custom in vogue previous to the year 1832; that the by-laws included all the "special rules" and "standing votes and resolves"; that they fixed the beginning of the fiscal year as January 1; that the duties of all officers and standing committees were defined; that four of the standing committees had been consolidated into two standing committees; that the by-laws embodied the suggestions of the officers of the society; that a copy had been sent to every Fellow of the society on May 10, 1913, a month before the meeting, and that since then numerous amendments had been incorporated in the revised draft, a copy of which was in the hands of every member present.

On motion by Dr. Goss, 54 members being present, the by-laws were adopted by a unanimous vote:

Voted, That all previous by-laws and standing votes and resolves be repealed;

Voted, That the digest of the laws relating to the Massachusetts Medical Society, the by-laws, the code of ethics, and the malpractice act, be printed in a pamphlet, and that the secretary be directed to have five thousand copies made.

On motion by Dr. R. B. Osgood, it was

Voted, That the thanks of the society be extended to the committee of arrangements for their efficient and successful plans for the meeting.

Papers were read as follows:

1. The Mode of Transmission of Infantile Paralysis.—Dr. Milton J. Rosenau, Brookline.

2. The Treatment of Diabetes Mellitus.—Dr. Elliott P. Joslin, Boston.

3. The Complement Fixation Test in Diagnosis.—Dr. James Homer Wright, Boston.

4. Diagnostic Significance of the Reaction—local and general—Produced by Intradermic In-

jections of Dead Gonococci in Gonorrheal Infections.—Drs. W. S. Whittemore, Cambridge, and G. C. Shattuck, Boston.

5. The Pathological Lesion of Whooping Cough, illustrated by lantern slides.—Dr. Frank B. Mallory, Brookline.

Discussion of Dr. Mallory's paper by Dr. L. J. Rhea, Boston.

At the close of the papers, a short recess was taken.

At 12 o'clock noon, the oration was delivered by Dr. Homer Gage, of Worcester, on the title, Some Abuses in Surgical Practice. The attendance at this time was about 200.

On motion by Dr. Lund, the thanks of the society were tendered to Dr. Gage for his interesting and excellent address.

In the afternoon, the combined Medical and Surgical Sections held a largely attended meeting at the Boston City Hospital,—there being from 260 to 300 present,—where the following papers were read on the topic,

Symposium on Diseases of the Gall-Bladder.

Medical Paper.—Condition of the Upper Region of the Abdomen in Relation to Disease of the Gall-Bladder.—Dr. Charles G. Stockton, Buffalo, N. Y.

Surgical Paper.—The Diagnosis of Gall-Stones from a Surgical Point of view.—Dr. John H. Gibbon, Philadelphia, Pa.

Discussion by Dr. G. G. Sears, Boston; Dr. J. T. Bottomley, Boston, Dr. Wilder Tileston, New Haven.

The annual dinner was served in the ballroom of the Copley-Plaza Hotel, in the evening, to 1198 Fellows and guests. The president sketched the work of the society during the year, and introduced the following speakers:

Ex-President Charles W. Eliot, of Harvard University; Robert L. O'Brien, Editor of the Boston *Herald;* Charles G. Stockton, an eminent physician of Buffalo; and John H. Gibbon, a noted surgeon of Philadelphia.

WALTER L. BURRAGE, *Secretary.*

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JUNE 7, 1913.

RIDER, C. E., passed assistant surgeon. Detached from *Pompey*, and ordered to Nav. Hosp., Olongapo, P. I.

LEDBETTER, P. B., assistant surgeon. Detached from Nav. Hosp., Olongapo, P. I., and ordered to *Pompey*.

THOMPSON, F. W., U.S.N., assistant surgeon. Died at Newport, R. I., May 30, 1913.

KERR, W. M., passed assistant surgeon. Detached from Nav. Hosp., New York, and ordered to Naval Sta., Honolulu, H. I.

FRENCH, G. R. W., assistant surgeon. Ordered to Nav. Hosp., New York.

BAKER, M. C., passed assistant surgeon. Detached from *Colorado*, and ordered to *Pittsburg*.

HALSEY, W. H., assistant surgeon. Ordered to *Montgomery*.

SMITH, G. T., surgeon. Detached from Nav. Sta., Honolulu, and ordered home, wait orders.

UNITED STATES CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for medical interne, for both men and women, on July 2, 1913. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Government Hospital for the Insane, Washington, D. C., at $900 per annum, with maintenance, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The positions are tenable for one year, and pay $75 a month and maintenance. At the end of six months, however, during which time a post-graduate course in mental and neurological diagnostic methods, etc., is given, an examination is held, and promotions to the next grade, junior assistant physician, are made. Beyond this there is regular advancement for men whose services are satisfactory. The Government Hospital for the Insane has over 2900 patients and about 750 employees to care for. In addition to the general medical practice offered, the scientific opportunities are excellent and the clinical opportunities in neurology and psychiatry are unsurpassed.

As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the Hospital Service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination.

Graduation from a reputable medical college is a prerequisite for consideration for this position.

Applicants must not have been graduated previous to the year 1908 unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation, which fact must be specifically shown in the application.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age, 20 years or over on the date of the examination.

This examination is open to all persons who are citizens of or owe allegiance to the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant.

RECENT DEATHS.

DR. JOHN NEFF, of Baltimore, who died in that city last week, was born in 1832.

DR. STEPHEN O. STORCK, who died on June 5 in New York City, was born in Virginia in 1878. He is survived by his widow and by two children.

DR. JOHN AUGUSTINE MAGEE, who died on May 23, at Lawrence, Mass., was born in 1848. He received the degree of M.D. in 1872 from the University of Vermont, and was a member of the American Medical Association and a Fellow of The Massachusetts Medical Society.

BOOKS AND PAMPHLETS RECEIVED.

Preventive Medicine and Hygiene by Milton J. Rosenau, M.D. D. Appleton and Company. 1913.

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Address.

POPULAR MEDICAL EDUCATION.*

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In a paper which I read some ten years ago before a literary club, I find the following statement, "Education is the very beginning and foundation of preventive medicine," and it may serve as a kind of text for my short sermon today.

Ten years have brought the subject of popular medical education much more prominently before the public—lay and medical—and convinced many of the essential truth of the statement above quoted; but opinions differ widely as to the methods to be pursued, and the majority still have no just appreciation of the importance of the movement, if indeed they have ever given it a thought. Among trained medical men few, if any, would be found opposed to popular medical education in these days, but many I believe are still not fully alive to their duty and privilege in this regard. I am not unmindful of the good work already done by individuals here and there, but the signs plainly indicate that unless the medical profession as a whole bestirs itself and takes its rightful place well up in the front it will not be in the fight at all, for the ranks are forming and are surely going to move.

Educators, social organizations, and churches are everywhere beginning to study this subject in certain of its phases, and are asking advice and counsel from the medical man, which he must be prepared to give. And what are some of the things upon which the public needs particularly to be enlightened? First of all is it not evident to every honest practitioner of medicine that the public is for the most part woefully ignorant of what scientific medicine really is? It is true there have ever been various cults and so-called systems of medicine based, not upon science, but upon mere speculative philosophy without tangible foundation of any sort; but one would think, beholding the splendid structure reared by scientific medicine in the last century, that, while it is by no means perfected, men would begin to have at least some conception of the difference between such a structure and those flimsy, top-heavy creations of the fanatic and money shark springing up on every hand. Not so; they grasp as eagerly as ever at these gewgaws, and fail to see the reason why they may not stand upon an equal footing with scientific medicine. And yet the reason for this condition of things is really not far to seek. Human nature is, in brief, the answer. Humanity—sick humanity—is ever seeking for some shorter and easier road to health, and he of the ready-made diagnosis and the sure cure will always have a following. I believe, however, making all due allowance for human nature, that by a proper system of education people—many people—may be brought to a better understanding of these things, and so fortified in a measure against all forms of quackery, whether in the profession or outside of it; for that quackery exists within the ranks of the profession is all too true, and we can hardly blame the people if they sometimes fail to discriminate, and judge the whole profession by such poor representatives. I plead for absolute frankness and open dealing with patients, tempered of course with tact and kindness; making no unwarranted claims nor false diagnoses; withholding what is for the patient's interest to be withheld and no more. The time-worn expedient of speaking slightingly to patients of other physicians who have treated them, still the chief asset of many quacks, should have no place in our armamentarium. As Medicine gradually frees herself from empiricism and superstition, it is the more incumbent upon us as individuals to measure up to the ethical and scientific standard.

Notwithstanding that the so-called germ theory of infection and disease has been established on a working basis for more than a quarter of a century, how few there are who have aught but the crudest conception of its meaning. To the majority it is a name and nothing more. If this ignorance were confined to the illiterate it would be less remarkable. An acquaintance of mine—college professor—listening to an explanation of the process of sterilization by heat, wished to know what we did with the germs after they were killed; and this, as you are well aware, is only a fair sample of what we are up against in trying to explain some of our medical problems. How it would clear the atmosphere of the fog through which most people look upon the phenomena of disease, and how much easier would be the physician's task, if the rudiments of this one subject were but clearly understood by the people. I believe that such a desirable state of knowledge may be brought about by a proper system of education.

A somewhat more difficult subject, from an educational standpoint, is psychotherapy—using this term in its broadest sense—and yet I believe it would be possible to so present this subject that its general principles could be grasped by the majority of educated people at least; and once grasped what a flood of light it would shed upon much which is evidently obscure to them at the present time. The broad fact that a varying proportion of the successful work of the regular practitioner, and—with due allowance for kind nature—nine-tenths of what passes for success in all forms of quackery and the various cults, systems and schools of medicine, so-called, is due to psychotherapy—the impression made upon the mind; this fact I say

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should somehow be brought to the comprehension of the people. To state this as an abstract truth is one thing, but it is quite another to so bring it home to the individual that he will apply it practically in any specific instance; nor would I say that it is always necessary or desirable so to do, except in so far as it may help to fortify him against the unwarranted claims of those who would lead him to ignore his real disease, or whose skill is measured chiefly by their ability to relieve him of his dollars. With honest, rational psychotherapy I have no quarrel; indeed, I believe there is a distinct field for it. The search for a physical basis in pathology for purely psychical disorders is well-nigh futile, it seems to me. It will doubtless continue, but it will reach a point—if it has not already done so—beyond which it cannot go. The basis of purely psychical disease is as elusive and intangible almost as the soul itself; hence treatment must be essentially psychical whether avowedly so or not. Build up the body by all means in every possible way, but to stop here is to fail in the great majority of cases as heretofore, simply because faulty cerebration and not physical debility is the basic condition. Often the more hopeless and intractable the psychical disorder the sounder the physical health.

Another subject of which most people have very little knowledge or appreciation is what we term predisposition. We know that inherent constitutional tendency is responsible for a great amount of suffering and disease. It is the predominant factor in three-fourths of all mental and functional nervous disorders, and enters largely into many other common ailments: obesity, asthma, migraine, gout and eczema are some of these. It is true that these tendencies may be modified in some cases, but removed never. "But," says one, "this is a too pessimistic view and had better be kept in the background." Pessimistic or not, these are facts which the physician has constantly to reckon with, and it were well, I believe, if people in general had a clearer appreciation of them, especially as in order to control them at all we need the intelligent coöperation of the patient; he must be made to understand that in these things it is not a question of pills and powders, but often of careful regulation of his whole habit of life.

Education for the people in sexual physiology and hygiene is perhaps a more important subject than any I have yet touched upon. It is certainly so regarded by many—physicians, educators and sociologists. Indeed it is a problem which is gradually forcing itself upon the attention of all who are interested in the welfare of humanity, and will not down. The barriers of prudery and false shame, which have so long shrouded this whole subject in darkest ignorance, fostering all sorts of crime and disease, are beginning to give way. It is agreed by all who have given the subject most study that the young should receive instruction in such matters. Whether this instruction should be public or private, just how and by whom it should be given, at what age it should be begun, are questions by no means so easily agreed upon. Ideally, the parent is, of course, the best instructor for the child in matters of so intimate personal significance; but this ideal is far from being realized, as you are well aware. The great majority of parents do not possess the requisite knowledge, and when they do they lack the moral courage and tact to properly instruct the child. Indeed, an important part of the campaign is the education of parents. If all parents were competent and ready to fulfill their duty in this regard the problem would thereby be solved, in so far as it is possible to solve it, and no further agitation of the subject would be called for. Upon the whole, the best system for adoption in schools would seem to be the biological one, beginning in the 5th and 6th grades with children from nine to twelve years of age; teaching the process of germination and fertilization in plants, and gradually working up through the lower forms of animal life to fishes, birds, and later to mammals, including man; employing laboratory methods wherever possible. To this end it is recommended that all normal schools require a course of training along these lines. Of course the success of this method, as of any other, will depend very much upon the personality of the teacher, her skill and adaptability for such teaching. It is said, and with some reason, that school teachers are already overburdened with too many subjects, and can take on no more. It would appear, however, that this course might be carried along with, and perhaps replace in part, the nature study already inaugurated without adding greatly to the burden. The object of this method—aside from its intrinsic value, which is not small—is to instruct the child in sexual physiology; or rather to satisfy his natural curiosity in an impersonal way, and that at an age before his sexual emotions have become very active, so that with this knowledge as a background, he may, as his sexual instincts develop, the more easily be led to right thinking and clean living. The argument—a favorite one with parents—that to attempt to instruct the child in such matters is to draw his attention toward them unnecessarily, has very little weight. It ignores the natural curiosity of the child, and overlooks the fact that the great majority of children, at the age of twelve, in all classes of society, have already learned more than they ought to know of sexual matters, and that from the wrong persons in the wrong way. All parents are prone to believe that their own children are an exception to this rule. It is not, therefore, a question of keeping such knowledge from the child—a thing practically impossible—but of teaching and guiding him aright.

You are doubtless familiar with the work of the Society of Sanitary and Moral Prophylaxis. The January, 1913 number of the journal, *Social Diseases*, published by this society, contains the

report of the special committee of the American Federation of Sex Hygiene. This committee, consisting of the late Dr. Prince A. Morrow, Prof. Thomas M. Balliet, the well known educator, and Professor Maurice E. Bigelow, have presented a report worthy of the most careful consideration. It is true not all will agree with this report in every detail, but it represents the best thought of those best qualified to deal with this question at the present time. I have here a copy of the journal containing this report. It may be obtained from the secretary of the society, 105 West 40th Street, New York.

In Chicago a course of lectures on this subject to pupils, and also one to parents, is given in connection with the school department under the censorship of Mrs. Ella Flagg Young, superintendent of schools. This work was begun three years ago by Mr. Ralph E. Blount of the Waller High School and has been carried on successfully by him and his assistants. The course to pupils consists of five lessons, given with the aid of stereopticon, introducing the subject by a lesson on reproduction in plants and lower forms of animal life, and finally including sexual hygiene and venereal diseases in man. Mr. Blount lectures to the boys, and Dr. Anna Blount to the girls. Mr. Blount very kindly sent me a typewritten copy of his report to the superintendent of schools, which I have here. It contains a complete outline of the course of lectures and some interesting details concerning the work; its objects and methods. The report is too long to read, but I will read Mr. Blount's letter to me. He says:—

"The enclosed copy of my report to the superintendent will show the sort of work we are doing. We have been giving the lessons to every class at the end of the half year's work in physiology. This is the fourth year. About 1500 pupils have had the lessons. We spend a week on the subject now. We expected to meet considerable opposition and were prepared to endure some hard criticism. Nothing but commendation has been made public. I have heard that one man has in private spoken disparagingly of the work, but he was actuated by a prejudice, not from any bad effects observed. Every result we can get at is good. One woman said the lessons had revolutionized the tone of the school. I am convinced they have put the boys on better terms with me. Please return the report when you are through with it."

Dr. Philip Zenner, professor of neurology in the University of Cincinnati Medical School, by request of the teachers in one of the Cincinnati schools, commenced giving talks to the boys of the school on sex hygiene. In the same school Dr. Nora Crotty lectures to the girls. Dr. Zenner also lectures to the college students in the University on the subject, and has recently published a book—which I have here—entitled "Education in Sexual Physiology and Hygiene," embodying all of these lectures. It is worthy of perusal by all who are interested in this movement. In some other colleges one or two lectures are given to students upon venereal diseases. I have here a letter from Dr. Eugene A. Darling who gives these lectures at Harvard, which I will read:—

"In my course in physiology I give usually four lectures on the reproductive organs, one on anatomy, one on physiology, one on hygiene and one on the venereal diseases. These lectures are only intended for the men electing my course (about 230 this year), but usually there are a number of visitors. I think the lectures are appreciated by the students as I try to stick to proved facts and avoid sensationalism. It is difficult to estimate their effect. A knowledge of the danger will not always prevent a man from taking risks, especially when his judgment is dulled by alcohol, but on the whole I think that the best way to deal with this difficult matter is by frank and candid instruction of young men. It can certainly do no harm if properly done and may do a great deal of good. I am not familiar with the practice at other colleges than Harvard."

Considerable activity along these lines is beginning to be manifest in churches and various social organizations. The Laiety League for Social Service (Mr. Orrin G. Cox, Secretary, 200 Fifth Avenue, New York) publishes a number of very good pamphlets on the subject. "Sexual Education and Amusements," "The Social Evil and Methods of Treatment," "Developing Into Manhood," are some of these. "How Shall I Tell My Child?", "When a Boy Becomes a Man," "Instead of Wild Oats," are the titles of three excellent little booklets, known as the Bok Series, published by the Fleming H. Revell Company. The New York State Department of Health at Albany has lately published three tracts, entitled respectively, "Sexual Hygiene for Young Men," "Sexual Hygiene for Young Women," "Suggestions to Persons Having Venereal Diseases," setting forth in plain language facts which the common people ought to know.

In studying the various publications on this subject, whether by professional teachers, physicians or laymen, one is impressed with the evident spirit of responsibility, almost timidity, in which most of them undertake the task, realizing that thus far their efforts are, as it were, tentative; and the reader who is disposed to be critical should take this into consideration. The problem is an exceedingly difficult and complicated one. It is agreed that it must be solved, but how? I am not of those who would have you believe that education, or ethics, or religion, or fear of consequences, or anything else will do away with illicit sexual relations and solitary vices in the present stage of man's evolution. A number, a considerable number, will not be restrained by any or all of these; but I believe that a thorough knowledge of the fundamental principles of sex physiology and venereal disease would restrain many—I will say one-half of

the intelligent young men who now go wrong in such matters. I have seen the argument advanced that it is of no use to teach boys these things because grown men, who know better, are not restrained, but that is just the point, the grown men as a rule do not know better; they are as ignorant as the boy of the risks and the possible consequences of venereal disease, even though they may be highly educated along other lines. And whose fault is it that they are thus ignorant but that of our educational system? The medical profession must also take its share of the blame.

In some of these publications I notice a tendency to exaggerate the evil consequences of sexual indulgence *per se*. This is a very difficult point to determine in the nature of things. It is largely a question of individual make-up, of inherent defect in the central nervous system; but the fact remains that if you teach a boy that any sexual indulgence before full maturity whether solitary or otherwise, will ruin him, soul and body, he, if he is normally constituted, is likely to find out that such is not the case, and conclude that you have lied to him, when all your instruction will go for naught. He may reach this conclusion by observation of others if in no other way. On the other hand, there is always the grave danger that boys of a certain temperament will become unduly alarmed by such teaching, and brood in secret over their indiscretions until they become confirmed neurasthenics.

The phase of the question which appeals most strongly to the physician is the prevention of venereal disease—syphilis and gonorrhea. Latent gonorrhea in the respectable male population is surely the most intolerable scourge of our civilization; intolerable because of the thousands of innocent wives and children of this same male population who are the victims of it.

Education is the foundation of preventive medicine because dogmatic assertion alone does not carry conviction to the average person; he must know something of the basis of such assertion before it can make any lasting impression upon him. This is one reason why it is so difficult to carry out the laws and regulations of health boards. If we ever get a National Bureau of Public Health it should be, and doubtless will be, very largely an educational bureau, in order to accomplish its purpose. A general campaign of medical education by lectures, publications and practical demonstrations should be inaugurated. The anti-tuberculosis campaign is an example of what may be accomplished by well organized effort. There are those who believe that the family physician is the one to educate the people, especially in sexual matters, by personal instruction, and 'tis well. In some instances much may be accomplished in this way, but the difficulties of such private instruction by the physician are many. I need not enumerate them. The average patient wants prompt relief from suffering and speedy cure; the physician's time and strength are largely expended in such efforts; for preaching he will generally get but little thanks and no pay. I believe more may be accomplished by organization and concerted effort. In this state we need no new organization for this work, but to utilize that which we already have, viz., The Massachusetts Medical Society. The appointment of the Committee on Public Health in 1912 was a step in the right direction, and I suggest that this section of the society hold at least one open meeting every year devoted to the medical education of the public; that as many laymen as possible be invited to attend, and that free discussion and criticism be encouraged upon topics of mutual interest. The free Sunday afternoon lectures at the Harvard Medical School, and the work done by the Council on Health and Public Instruction of the A. M. A. are signs of the awakening of the medical conscience to its public duties on this regard.

But when all is said our chief hope is in the rising generation, hence a large share of responsibility rests upon our educational institutions; and here let me say that I have the greatest consideration for the educators. Their problems are difficult and complicated—none more so—and they are beset on all sides by cranks, faddists and would-be reformers with schemes more or less impracticable. For the work already done in schools and colleges in physical culture, hygiene and physiology, much credit is due. I believe, however, that the time is not far distant when more will be required, even to the exclusion, if necessary, of subjects of less vital importance. An epitome of the history of scientific medicine, especially in the last one hundred years, a course in bacteriology as applied to the more common infections, not omitting venereal diseases, as well as some instruction in the other topics touched upon in this paper, should, I believe, be included in the curriculum of every college for either sex, if not in that of every preparatory school. Just how this instruction should be given, whether by lectures, or by textbook, or by both, I would not undertake to say; but however given, the main object to be attained is the inculcation of fundamental principles and right methods of thought in such matters, rather than the memorizing of many technical details; and all this for no other reason than that these things have an important and intimate connection with the daily life of every man, woman and child of the community.

The Daily Express, which recently opened a subscription list for the purpose of providing the London hospitals with radium, received £10,375. It is calculated that for £250 about 15 mg. are procurable, and that this is an amount with which a good deal of useful work may be done.—*British Medical Journal.*

Original Articles.

CEREBRAL COMPLICATIONS IN PNEUMONIA.

BY CHARLES F. WITHINGTON, M.D., BOSTON.

THERE are to be excluded from the present discussion: First, cases of so-called cerebral pneumonia, in which the pulmonary lesion, possibly slow in developing physical signs, is accompanied by intense cerebral excitement and delirium, the cause of which is later cleared up by the diagnosis of pneumonia. Such cases are sufficiently familiar to everyone. Second, cases in which pneumonia develops as a terminal infection in persons suffering from cerebral lesions producing paralysis.

The scope of the paper will be cases of a distinctly cerebral character, developing during or immediately following pneumonia and related to the specific infection of the latter disease. These may be divided into two classes: First, those with organic lesion; second, those without. In the former category by far the most common condition is meningitis. Other lesions are:

Embolism, thrombosis, hemorrhage and softening, edema, encephalitis (*a*) with abscess, (*b*) acute hemorrhagic.

Certain of the latter cases shade off into the second group where there are paralyses without demonstrable lesion. The latter are to be considered toxic in origin and may affect, (*a*) the brain, (*b*) the peripheral nerves.

MENINGITIS.

Meningitis, while uncommon in pneumonia, is found more frequently than any other organic lesion. Pye-Smith, in Allbutt's system, says that meningitis is a complication in 1 to 1,000 cases of pneumonia of patients above ten years and in from 1 per cent. to 2 per cent. in cases below ten years of age. It may come in the first week if very grave cases or about the tenth day in less rapidly fatal pneumonias. He says it is usually purulent and universally fatal. The latter statement is apparently incorrect. (See Holt's case, below). If it is upon the vortex it is often undiagnosticated during life, the delirium being considered toxemic. If basal, it is more readily diagnosticated.

Gossage suggests that the exudate may be serous and not purulent and may disappear spontaneously like corresponding pleurisy. He gives a case where head retraction, twitching, and optic neuritis were present, and which recovered.

Laignel, Lavastine and Roger Voisin[1] find in a series of autopsies of patients dying with broncho-pneumonia lesions on the one hand representing simple edema; on the other, an inflammation. They could not tell whether one was the precursor of the other. The lesions ranged from a simple congestion to a purulent meningitis. They appeared alike in patients who had and who had not manifested meningeal symptoms during their broncho-pneumonia.

Holt[2] records a case of pneumonia in a child of two, sick ten days with consolidation of left lower lobe. On the eleventh day, convulsion of all extremities, retracted head and rigidity. Lumbar puncture produced one and one-half ounces of clear fluid, high tension, no cells, no deposit, but culture after twenty-four hours showed abundant growth of pneumococci. The next two days, stupor and rigidity; no eye symptoms except photophobia; no Kernig. A second lumbar puncture two days later showed pneumococci in culture. The child recovered.

Netter[3] speaks of meningitis as sometimes due to pneumococci, with or without pneumonia, and says that the proportion of meningitis found in autopsies in cases of pneumonia varies from 43 per cent. to 1.39 per cent.; clinically, from 8 per cent to .08 per cent.

Levi[4] speaks of serous meningitis due to pneumococci which are characterized by a simple serous exudate between meninges, with strong vascular congestion. These lesions of infectious origin may be due sometimes to microbic toxines, but often are the result of microbes themselves, which may be pneumococci, typhoid, or grippe bacilli, streptococci and probably, also, bacillus coli. They show generally an attenuated infection which phagocytosis can conquer. While purulent exudates show the victory of the microbes over the phagocytes degenerated into pus globules, some curable cases like pneumonic meningitis are due to lesions of this nature. Sterility of the cerebrospinal fluid must not be asserted on failure with ordinary cultures. In these a pneumococcus of feeble vitality may not survive, while an inoculation in a mouse may prove positive. Even in cases where such inoculations were apparently negative, that they have some validity may be shown by their conferring an immunity against virulent injections.

Fraenkel[5] criticises Aufrecht and regards the hemiplegia, which the latter describes in pneumonia as a purely symptomatic disturbance of the nervous system, rejecting the hypothesis of meningitis because of the lack of characteristic symptoms of the latter and also from the fact that some of them are cured.

THROMBOSIS.

Whipham[6] cites a characteristic case of this condition. A child of one year, eleven days previously suddenly ill with convulsions, cough; no history of otorrhea, patchy consolidation of the left lower lobe. Four days later, right side suddenly spastic, head retracted; spasm passed off in two hours; head stayed retracted; vomiting,

repeated convulsions, starting on the left side and spreading over the whole body. Head retraction increasing. Death four days after the cerebral symptoms. Autopsy showed a septic thrombosis in the superior longitudinal sinus and the connecting veins were thrombosed. The right lateral sinus, recent thrombosis, the straight sinus, white, slightly adherent clot. Small abscesses in the left occipital lobe, large abscesses in the right, with thick pus communicating with the right lateral sinus. Both middle ears contained pus. Lungs: Acute purulent bronchitis, left lower lobe, solid broncho-pneumonia.

Suckling[7] reports a case of right hemiplegia from cerebral thrombosis complicating pneumonia, remarking that this is the first case of hemiplegia met with in one thousand cases of pneumonia in the Birmingham Workhouse Infirmary. A girl of eighteen, admitted on the tenth day of illness with pneumonia of the left base. On the fourteenth day, earache without discharge; fifteenth day, temperature rising; in the evening patient comatose. After one day of incomplete unconsciousness, coma became complete, followed by paralysis of right arm and right leg. Patient died on the seventeenth day. Post mortem: Thrombosis of the basilar artery, left half of circle of Willis, also of deep and superficial arteries of the left hemisphere. No emboli.

Thrombosis of the sinuses, it may be said in passing, is not rare in other infections; for example, typhoid[8], and even in pernicious anemia. (*Ibid*, Vol. xiii, p. 25, Osler.)

CEREBRAL ABSCESS.

Landrieux[9] reports a case of pneumonic hemiplegia with a cerebral abscess, with pneumococci. A man of forty, with good health and habits, four days before admission, had been thrown into the water and rescued after ten minutes. Had chills for next two days. Following day, cough, pneumonia of left upper lobe. On fourth day of illness, slight stiffness in the neck; no Kernig sign. Lumbar puncture gave fluid of normal color flowing under slight pressure. No abnormal contents. Same evening, left hemiplegia, total, flaccid. Slight conjugate deviation of the eyes and head. No coma, no aphasia. Extreme abundance of polynuclear leucocytes. Death on the sixth day of the disease. Autopsy showed usual lesions of pneumonia; nothing found in the meninges. No increased volume of either hemisphere. Abscess cavity right hemisphere, partly in the lenticular nucleus, partly in the anterior segment of the posterior arm of the internal capsule. Pure culture of pneumococci in the fluid; inoculation of mice, positive. The writer speaks of the impossibility of distinguishing between this case and the pneumonic hemiplegias which we are to consider later under the head of paralyses without lesion. The foregoing condition is sometimes referred to as encephalitis with pus, but we come next to a much more frequent condition.

ACUTE HEMORRHAGIC ENCEPHALITIS.

Strümpell,[10] in 1890, gives the first clear description of acute primary encephalitis. He points out a close relation between some cases of encephalitis in children, and poliomyelitis, two conditions resembling each other in their infectious origin, differing chiefly in the character of the resulting paralysis. Quite distinct from these cases in children is the acute encephalitis of adults of which Strümpell gives two cases with careful post-mortem studies, one in a healthy man of twenty-seven, another in an old man. In both, the clinical picture was sudden unconsciousness, paralysis, in one with crossed patellar reflex, in the other with rhythmical movements of the unparalyzed side, with exceedingly high fever, 107.9. The essential and significant pathological finding in both cases was a true, acute interstitial inflammation proceeding from the vessels into the white matter of the brain, with hyperemia and a development of leucocytes about the enlarged vessels and abundant punctiform hemorrhages. Both patients showed a pneumonia and one of them a splenic tumor. Strümpell says that acute hemorrhagic encephalitis may also be the sequel of other diseases, especially influenza. Very severe cerebral symptoms (headache, loss of consciousness, hemiplegia) come on suddenly and lead to speedy death with high fever. Autopsy showed several hemorrhagic, encephalitic foci, usually confined to one hemisphere. Brain yellow and softened, very edematous and studded with numberless little capillary hemorrhages. He adds, "It is of practical importance that, according to more recent observation (the author, Oppenheim and others) a *curable* form of encephalitis also occurs in adults. Acute onset with fever and grave general cerebral symptoms (headache, stupor, delirium, occasionally deep sopor); also marked focal cerebral symptoms (hemiplegic disturbances, aphasia, hemianopsia, symptoms of cortical irritation) and after some time (a few days or several weeks) an entire disappearance of all symptoms with the exception, perhaps, of certain residual ones which, however, do not progress. An ophthalmoscopic examination is of great diagnostic importance in all these cases. It frequently, though not invariably, shows a marked optic neuritis with more or less marked venous congestion."

Mollard and Dufourt,[11] upon acute encephalitis in pneumonia, quote from Chartière, with an example, who says that many cases of pneumonic hemiplegia are to be classed as encephalitis.

Also from Chappet (thesis), who finds only one case with autopsy where there is actual encephalitis. This was in a woman of seventy-

three who, in the course of pneumonia, was taken with paralysis of the face and left arm. Autopsy showed congestion of meninges, right hemisphere, of rosy color. In several other cases the brain is the seat of hemorrhages which seem to depend on another cause (softening and thrombosis). On the other hand, he cites numerous cases of hemiplegia followed by recovery in which a large part must have been played by encephalitis. Mollard cites the case of a man of forty-four, alcoholic, seen the fourth day after a chill; pneumonia of the right base, enteriorly. Seventh day of sickness, violent delirium, rigidity, retraction of neck and head. Lumbar puncture, clear, limpid fluid-like spring water, rare cellular elements, three polynuclear, one lymphocyte, no pneumococci. Death on the eighth day. Autopsy showed pneumonia. Dura not adherent. Congestion of the vessels of the meninges, vessels dilated, one small meningeal hemorrhage. Along sulci a sort of jelly, scanty, no pus. The brain showed a delicate rose color, not disappearing with washing, diffused over both hemispheres. Section of white matter showed no hemorrhage, but bloody points. Inoculation of subarachnoid fluid showed culture negative.

Mollard gives two causes for the encephalitis of pneumonia: first, toxines; second, pneumococci carried through the blood. Perhaps both act. Pfuhl has found in the brain bacillus of Pfeiffer, Curschmann the bacillus of Eberth and Leichtenstein a meningococcus.

As to the occurrence of pneumococcus, two groups are described: (1), of pure pneumococci infection; (2), with associated infection. In the first group of five cases, pneumococcus was abundant in the blood. In two of these the brain was sterile, notwithstanding the gravity of the infection, but in the other three cultures from the brain substance gave many pneumococcic colonies. In the second group of five cases the diplococcus lanceolatus was associated with streptococcus and staphyococcus. In all the brain was poor in bacteria and showed only one of the kinds found circulating in the blood.

Leichtenstein[12] described cases of acute hemorrhagic encephalitis occurring, first, in epidemics of cerebro-spinal meningitis; second, in ulcerative endocarditis; and third, in influenza. The etiology in all cases is infectious.

Comby[13] finds that the etiology corresponds with what has already been described. The symptoms are, sudden onset, convulsions general or localized, often epileptiform, coma, contractions. Sometimes convulsions are wanting, being replaced by flaccid hemiplegia which might suggest cerebral softening. He says that many cases recover. Meningitis is excluded in these cases by negative spinal fluid. In the latter polynuclears are found to predominate in bacterial meningitides; lymphocytes in granular meningitides. In encephalitis there are no leucocytes.

Turning now to the second group, previously indicated, of paralyses without lesion, we may premise by saying that possibly in this group are some of the cases last referred to, of recovered encephalitis. Most of the inorganic cases, however, are toxic in origin, the poison may spend itself (*a*) upon the brain, producing hemiplegias somewhat analogous to those seen in uremia, without lesion, and (*b*) upon the peripheral nerves, being analogous to the neuritides following diphtheria.

Lesieur[14] and others restricted the term pneumonic hemiplegia to cases in which there is no gross alteration of the brain, it being admitted, of course, that the gross alterations of hemorrhage, softening, etc., already considered, are liable to occur in pneumonia.

Of this type of cases considerable has of late years been written by a few French and German authors.[15] Space will not admit of a detailed discussion of the views of these writers nor of a description of their illustrative cases. These "true pneumonic hemiplegias" occur mostly in young people and are generally recovered from. Hence the relative scarcity of autopsies. Some of these writers hold that the cases may have been due to a larval pneumococcic meningitis, and Comby refers some of them to a secondary encephalitis.

But the majority hold to the view of a toxic influence either directly upon the brain cells or through vaso-motor nerves. The flushed cheek in pneumonia suggests to several of them a similar vaso-motor disturbance inside the cranium, as does also the fact that vaso-motor paralysis sometimes first affects the limbs which are later to show a true paralysis. Boulloche is inclined to think some of them hysterical.

These paralyses are often of short duration and usually of benign character, which indicates that they are not associated with any permanent material alteration in the nerve centers. It is usually at the end of the second or third day in the onset of pneumonia, rarely later, that the aphasia begins. It may be preceded for some hours by headache, bewilderment, vertigo, or paresthesia in the right side of the face or right arm. Sometimes the symptoms become frankly hemiplegic. Aphasia may begin without any impairment of consciousness or may follow a true apoplectic attack. The type is usually ataxic as in lesions of the third left frontal convolution. The patient may pronounce only a few monosyllables more or less appropriate to what he wishes to say. At first the intellect is blunted and he cannot understand what is said, but after a few hours indicates by a gesture that he wishes to talk.

One writer believes that such paralyses are usually on the right side, which accounts for their frequent association with aphasia. The aphasia is usually short, disappearing after three or four days. Illustrative cases are cited, in one of which aphasia appeared early on the third day of pneumonia with slight syncope, followed by prickling of the right arm; at noon further syncope and aphasia which lasted only

one day, with recovery. In a case cited from Balzer, a patient with aphasia died of pneumonia five days later. The brain was found perfectly normal and microscopic examination of the third convolution showed nothing.

Doernberger reports a case so characteristic that it deserves quoting. It is that of aphasia in a boy of three and a half, who had a wandering pneumonia, involving both lungs. On the sixteenth day there was loss of consciousness and speech; pupils dilated, fixed, equal; eyes wide open as if looking at a distance; occasional scream, otherwise stupid; no response to call. Stiffness of neck the following day; clonic spasms of the left extremities; face drawn to left. In two or three days the convulsions and meningeal symptoms disappeared. On the tenth day after the onset of the cerebral symptoms, patient free of fever, notices playthings, laughs and puts out his hand, makes fruitless efforts to speak, distorting his face in the attempt. On the following day he speaks the first words, "Yes" and "No." His speech from that time gradually returned and he resumed complete health.

I have examined the records of pneumonias, so far as they are catalogued in the Boston City Hospital files, for a number of years, and find among about 7,600 patients, that there appear to have been the following types of cerebral disturbances: 21 cases of meningitis, 4 of embolism, 2 of thrombosis, 1 of softening, 3 of abscess, 2 of edema, 2 of hemiplegia, 1 of transient aphasia. I find no diagnosis to have been made of encephalitis, though it is probable that that condition may have been responsible for several of the cases otherwise classified. In addition, there was one case of facial paralysis occurring apparently as a consequence of pneumonia. A few typical instances of each of the foregoing groups may be cited.

MENINGITIS.

Of the 21 cases, 5 were confirmed by autopsy and 2 others by lumbar puncture.

J. M., 63, service of Doctor Bowditch, April 20, 1898. Severe headache in the morning, fainted in the afternoon, unconscious for a short time. Following day, cough, temperature 102, consolidation of the right lower lobe, posterior. Process increased through the right lung. On the 28th, violent muscular twitching, eyes turned up and to the left, jaws stiff, rigid; death on the eighth day of the disease. Autopsy showed pneumonia with pneumococci in the smears, throughout the whole right lung. The dura was adherent to the skull. Pia thickened. Considerable amount of thick yellow fluid extending along the vessels from the left occipital to the front part of the parietal lobes. Same on the right hemisphere to a less extent. Also on the superior part of the cerebellum. Brain section normal, middle ears normal, cord normal. Smears from the exudate showed pneumococci in considerable numbers.

The other cases of meningitis showed similar symptoms; one other illustration will suffice:

R. A., 35, service of Doctor Mason, entered April 15, six days after a chill, with pneumonia. Crisis on the twelfth day of pneumonia; two days later temperature began to rise again. Three days later much worse, sudden violent delirium; seemed to be in pain. Neck rigid, head not retracted. After two and a half hours, patient quieted. Following day, Cheyne-Stokes respiration, dilatation of pupils, knee jerks present but slight. Death. Autopsy showed organizing lobar pneumonia. Brain: Dura not adherent. Pia opaque. Between it and the brain, green yellow material, thick, viscid, veins much congested. Cerebellum covered with exudate. Ventricles contained slightly opaque fluid in excess in quantity. Middle ears normal.

EMBOLUS.

N. D., Italian, 30, single, service of Doctor Morse. Sick June 1, chill, consolidation of middle lobe. Crisis on the tenth day. Temperature normal three days, but began to complain of pain in legs, especially the right, which is cold from right knee downward. On the anterior and outer aspects of the leg, a diffuse purple area. Left leg cold from just below the knee. No pulse in the posterior tibial or dorsalis pedis in either leg, nor in the right popliteal artery. Strong pulse in both femorals. No phlebitis. Slow gain in both legs followed until June 17, when the patient fell out of bed at 3 a. m. Unconscious, Cheyne-Stokes respiration, general muscular rigidity, jaws closely set, arms straight, and rotated inwards with frequent twitching. When the legs were raised patient breathed more noisily as if in more pain. Well defined ankle clonus. Pneumonia wholly resolved. Patient died fourteen hours after the cerebral attack, which, in view of the preceding peripheral emboli, was evidently itself of embolic origin.

THROMBOSIS.

L. D., about 50, male, service of Doctor Folsom. This patient had an attack of pneumonia November 5, which was still unresolved on December 20 when a brief attack of erysipelas supervened and he left the hospital at his own request February 2. Was readmitted with pneumonia of left side. On March 9 there was delirium; on March 13 he died. The autopsy showed unresolved consolidation, without tuberculosis, both lungs. In the brain the veins of the pia and arachnoid over the posterior half of the left cerebrum were deeply injected and between them abundant profuse hemorrhages into the tissues of the pia. Same injection with hemorrhage was present over the median aspect of the posterior halves of the cerebrum and to a less extent over the posterior third of the right half of the brain. On the left side, a firm grayish yellow thrombus was present in the vein of the fissure Rolando. In some of the other veins posterior to this in the median fissure and to a less extent over the posterior portion of the right half of the cerebrum, similar thrombi.

SOFTENING.

K. W., female, 24, married, service of Doctor Sears. June 1, slight pain for a few days. Yester-

day unconscious, white count 27,000. Five days later neck rigid, dull, stupid, incontinent. Consolidation of lower right back, stupid, and twitching of the hands. June 15, died. Autopsy showed consolidation. Brain: Nothing exteriorly; slight increased cerebrospinal fluid; many areas of softening in the anterior part of the cerebrum confined to the white matter. These areas frequently connected with one another and contained gray yellowish puriform material. Smears show collection of large mononuclear cells, no polynuclears.

ABSCESS.

M. Y., female, 39, married, service of Dr. Mason. August 24 to September 5, pneumonia followed by empyema, which was opened in December and continued to discharge. February 18, vomiting, lost consciousness, collapse, followed three days later by violent delirium and death. Autopsy showed empyema of the right side, on the left side consolidation with cavity. Brain: Turbid fluid with many leucocytes among the meshes of the pia, at the base, and in the left ventricle. Abscess cavity in the posterior horn at the right ventricle; rough walls, green, foul-smelling material. Abscess cavity continuous with ascending horn which to its end is filled with similar material. Around the abscess and along the course of the ascending horn brain substance for distance of one cm., presents numerous punctate hemorrhages.

EDEMA.

M. B., aged 11 months, service of Dr. Williams. Two months ago convulsions and bronchitis. Convulsions recurred on day of admission, February 13, and the patient died suddenly, eight days later. Autopsy showed lungs last stages gray hepatization of the left lower lobe. Edema of the brain. Beneath the pia a well marked collection of fluid, the pia being raised above the brain 3/8 of an inch. No tubercle bacilli found anywhere.

In the collection of cases no diagnosis of encephalitis was made, clinically or anatomically, but it is probable that some of the cases of hemiplegia may have been of that nature, as can be conjectured from cases quoted in the earlier part of this paper, and the following one is possibly one of that character.

J. P., Italian, 27, male, service of Dr. Shattuck, December 19, symptoms for four days, pneumonia left lower lobe. White count 26,000. Three days later marked delirium, convulsive attacks. Once jumps up and runs about the ward. Defervescence on the ninth day of the illness. Following day return of fever. Temperature 101 to 101½. Next two days temperature rising. Constant delirium requiring restraint. Fever continues on the fifteenth day, temperature to 104, white count 20,900. January 1, great deal of resistance; difficult to examine reflexes; slight retraction of the neck; spasticity of arms and legs; Kernig apparently present; no Babinski. Lumbar puncture gave one ounce of clear fluid without pneumococci. Patient died without change in his condition and there was no autopsy. The evidence in this case, from the negative content of the spinal fluid, rather favors encephalitis as against meningitis, though the symptoms might suggest the latter. Other cases of hemiplegia also suggest encephalitis, viz.:

E. C., female, service of Dr. Sears. Entrance March 1, without history. Pneumonia of the right back, herpes of lips, no brain symptoms. Following day temperature dropped and was normal for nine days. Then complained of severe right-sided headache somewhat relieved by ice cap. Lungs nearly clear. Following day, headache worse, weakness of left arm. Following day, complete paralysis of left arm, partial of left leg. Stupor, gradually deepening to coma. Occasional convulsion of left side of body with exception of left arm. Rising temperature. Died March 13, no autopsy.

Under the second group of brain symptoms without lesion is a brief case of aphasia:

E. E., Married, 32, female. April 8, temperature 104, consolidation of right lower back, white count 22,500. Articulates rather poorly. April 19, marked aphasia, tongue slightly protruded to the right. Movements of both sides of the face equal. Pupils equal and react. Ocular motions normal. Field of vision normal to rough test. Knee jerks normal. No paralysis. Some words are unintelligible and others are better pronounced on repetition than at first. She can write and read aloud better than she can talk. Next four days power of speech much improved and she was discharged later, well.

A case of facial paralysis of transient character during the convalescence of pneumonia, was apparently of the toxic type and may have been of central origin or due to peripheral neuritis.

The most remarkable case which has come under the observation of the writer, of grave cerebral symptoms occurring consecutively to pneumonia and apparently presaging a fatal result, is the following, which was seen in consultation at the Boston State Insane Hospital:—

The patient, W. M., was an attendant in that institution and a strong and healthy young man of admirable habits. On February 5, 1913, the patient complained to his friends of headache and general pains. On February 7 he went off duty, and went to bed, complaining of headache and general pains in the shoulders, back and legs. Constipated. Temperature 100. On February 10 his temperature was 104 and he complained of a slight pain in his chest. No signs of pneumonia found. He also had a little cough without expectoration. For the next six days his temperature was irregular, between normal and 101. On February 16 he had a perfectly normal temperature and said that he was feeling very much better, so that the physician did not see him at all on the 17th. On the morning of February 18 he complained of headache and appeared rather dull, answering questions mostly with yes or no; still no signs of pneumonia were found. When seen at 3 p. m. he showed partial aphasia and partial paralysis of the muscles of the right side of the face, but he was then able to walk and assisted himself while being moved to another room. At 8 p. m. he had complete aphasia and diminished grip in the right hand, but he could move both the right arm and leg and turn over in bed when asked to do so. He understood all that was said to him and cooperated readily, with

the exception of talking. His temperature at 6 p. m. was 102.4. At 10.30 p. m. he had a severe attack of propulsive vomiting. I was asked to see the patient on February 19, when, after getting the foregoing history, the following condition was observed: The patient was dull, saying nothing. He protrudes tongue when requested. Pupils are equal and responsive. No oculo-motor paralysis. Right side of face does not move; right arm is fully paralyzed except for very slight movement of the fingers; paralysis of the right leg nearly complete. Sensation absent on paralyzed side. Complete aphasia. Knee jerks equal and normal. Is incontinent. Babinski reaction and ankle clonus on right side. Oppenheim and Mendel reaction on right. The heart sounds were clear and there was slight dullness outside the heart apex. No abnormal auscultatory sounds were heard. Respiration was shallow and the patient could not be made to cough or to take a long breath. In view of the septic temperature and the sudden, nearly complete paralysis with the reflex anomalis noted, in a young and previously healthy man, the opinion was expressed that he probably had a septic thrombosis, the infection probably originating in the chest. The blood count which yesterday showed 19,600, was to-day 13,200, with 93 per cent. of polymorphonuclears. Lumbar puncture brought a clear fluid which was later reported sterile. Widal negative. Blood culture was also later reported as negative.

February 20: temperature at 6 a. m. was 102.2 and at 6 p. m. the same. He voided urine and feces in bed, and while he followed the nurses and physician with his eyes, he quite evidently did not know what was going on. However, if asked if his head ached and where it ached, he rubbed his hand over the right side of his head.

Two days later (February 21) I saw him again. The morning temperature was then 104.6. Pulse 92. Respiration 46. The paralysis of the right side was complete; pain sense absent. No paralysis on the left side. He swallows, but with difficulty, and the attempt causes coughing and choking. Says nothing and apparently does not recognize his sister who has arrived from a distance. In the left back where the dulness was found two days ago there are fine râles over limited areas warranting the diagnosis of bronchopneumonia. The prognosis, in view of the worse cerebral condition, was considered highly unfavorable. The event, however, contradicted this prognosis, for, after five days of desperate illness, the temperature fell and improvement began. For the remaining, as well as for the earlier, history I am indebted to the careful record of Dr. E. C. Noble who was in charge of the case.

For the next three or four days the temperature remained elevated but in two days he swallowed a little better. On the morning of February 26 the temperature dropped to 99. He still was incontinent and very restless; aphasia and paralysis complete. Two days later he appeared to recognize the physician and his friends and very slightly moved the fingers of the right hand. No other movement of the paralyzed side. Babinski and clonus present on right side. Knee jerks equal.

March 1, a. m., he slightly moved the right arm but not the foot; in p. m. he could flex the arm and move the foot a little.

March 3, he spoke for the first time, at seven o'clock. This was only a muffled sound in reply to someone saying good morning. He said nothing more until 10 p. m., when he distinctly asked "What time is it?" Temperature normal; incontinent of urine still.

March 4, no longer incontinent. Speech thick, no attempt made to make him talk, but he says a few words with effort and seems pleased at doing so.

March 10, speech has returned, also motions of right side. A slight Babinski and very slight ankle clonus remain.

March 20, steady improvement during the last ten days. Temperature normal; eating well; moves unaided from bed to chair. Is dressed for first time.

April 1, walking outdoors for last seven days and starts for Vermont. No paralysis, aphasia, Babinski nor clonus. Patellar reflexes equal and normal.

In marked contrast with the outcome of this case is one which the writer saw many years ago in a man of about thirty-five years of age, strong, of good habits, who had a grippe followed by pneumonia, in the course of which occurred a hemiplegia less severe in clinical character than the one last recorded and which resulted fatally.

It is important to recognize, clinically, then, that in a few cases cerebral symptoms may complicate pneumonia which may be, on the one hand, either those of grave organic lesion, of which the commonest is meningitis, or, on the other hand, of apparently toxic origin with little or no destruction of brain tissue. The enormous importance from the point of prognosis of this distinction is evident, but difficulty in diagnosis is sometimes insuperable. Lumbar puncture is of importance in excluding meningitis, though it is not an unfailing criterion. Examination of the fundus may be useful. Cases of encephalitis are not always to be distinguished from the functional cases, and it is possible that many cases of hemorrhagic encephalitis may recover. The prognosis, if one be assured of the inorganic toxic character of the disease, would be on the whole favorable, though it is not as roseate as is indicated by some of the authorities which I have quoted. The occurrence of the symptoms in a young healthy person is more suggestive of a toxic functional character than would be the case in aged people. The toxemia is productive of diverse symptoms according as its incidence is upon the central or the peripheral nervous system.

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DO RESULTS JUSTIFY THE USE OF PHYLACOGENS? A REPORT OF FORTY CASES.*

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PHYLACOGENS, of which we have heard much lately, owe their existence to Dr. A. F. Schafer, a California physician, who based this new therapy on three assumptions:—

1. That many diseases are caused by the metabolic products of bacteria.

2. That the human body is the host of varying organisms, which, while normally dormant, are capable of sudden activity. And,

3. That the growth of these organisms and their pathological effects may be neutralized by products derived from their growth on artificial culture media.

Schafer believed, further, that no infection was due to a single variety of bacteria, but rather to several varieties acting concertedly. To this fact he attributed failures in the use of vaccines, for the vaccine ordinarily consists of a suspension of a single organism. To prepare his Phylacogen, Schafer planted, on artificial media, a large variety of pathogenic bacteria. These were incubated for about seventy-two hours, killed by phenol, suspended and filtered through porcelain. This filtrate formed his "Mixed Infection Phylacogen," and was essentially the filtrate of a mixed vaccine. Schafer made this the basic material,—the vehicle,—for all his other preparations for specific diseases. To it, for example, he added the gonococcus filtrate for gonorrheal infections, the pneumococcus filtrate for pneumonia and so on.

It seems desirable to throw light on the Phylacogen question at the present time because of the dispute that has arisen between the sponsors for these preparations and the officers of the American Medical Association. On one side are allegations of remarkable cures in a large percentage of varying infections; on the other, statements that the products are ill-conceived and worthless and that a physician who uses them is very reprehensible.

Let me quote from an editorial in the journal of the Association[1]: "The physician is asked practically to disregard the little knowledge he already has of the mechanism of infection and inject into his patients a mixture of toxic bacterial derivatives, called Phylacogens, and see what will happen. Something usually does happen, and the patient has good reason to remember the experience of the chill and violent constitutional symptoms that follow the injection. It hardly seems possible that physicians of experience ever would countenance the injection of such toxic substances into patients already overwhelmed with the poisons of infection, such as that by the streptococcus in erysipelas or the pneumococcus in pneumonia."

And again,[2] "Rheumatism Phylacogen is one of the series of proprietaries now being put on the market, based on a theory of the originator that it is possible and necessary in every infection, not only to combat the action of the principal causative agent, but also to counteract the influence of other organisms, supposed to be always present, which produce a mixed infection. For meeting this supposed mixed infection a mixture of the metabolic products of a large number of organisms is made the base of the remedy to be administered. . . We have no definite information as to the particular organism whose metabolic products enter into this 'shotgun' base, so that the remedy is essentially a secret one. . . The honest physician,—one who is honest with himself and with his patients,—will not lend himself to such experimentation."

Broadly speaking, this condemnation is two-headed: first, it avers that the filtrate is toxic and second, that its formula is secret and that Phylacogen users are therefore reverting to empirical methods. The first charge is true, just as it would be true of tuberculin, or of the vaccines or bacterins. I cannot but feel that most of the invective is due to the fact that a secret preparation is being widely exploited for the money to be derived from its sale.

If this be true, some may think it fair, before declaring the Phylacogens guilty, to let them prove, if they can, their innocence; to inquire whether benefits may be derived from their use which may not otherwise be obtained; to ascertain whether these benefits, if there be such, outweigh the toxic effects; to determine whether we should overlook, even, the secret formula. If the Phylacogens fulfil the claims of the manufacturers, one may question the statement that no honest physician will use them.

To this end I have collected forty Phylacogen cases. These are not selected cases but, in order to avoid a tendency to report only favorable results, they comprise all available cases. I have tried especially to guard against the over-enthusiasm that nourishes many new methods of treatment when first they attract medical attention. I admit, furthermore, that the number of cases is too small to establish conclusively the efficacy or inadequacy of the Phylacogens. They are straws, rather, to show which way the wind blows.

The compilation has been made possible only through the courtesy of several members* of this society, each of whom has contributed one or more cases to add to my own. It seems logical to divide the forty cases into six groups, as follows:

Group 1. Infectious arthritis, including "rheumatic fever" and chronic types of inflammatory joint disease. The chronic cases probably vary in etiology and in pathology, because of the

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* Drs. Bastian, Beauclerk, Bugbee, Bullock-Mahan, Butterworth, Grafton, Graves and Sanders.

lack of agreement among physicians in classifying these lesions. There are thirteen cases in this group.

Group 2. Gonorrheal arthritis. Seven cases.

Group 3. Asthma and bronchitis. Eleven cases.

Group 4. Pleurisy. Two cases.

Group 5. Pneumonia. Five cases.

Group 6. Miscellaneous. Two cases.

A summary of the series is of interest:—

GROUP ONE. INFECTIOUS ARTHRITIS.

CASE 1. An acute case in a man of 73, following tonsillitis. Both wrists and both knees had been involved for two weeks and the patient had also a hypertrophied, dilated heart which was acting badly. He received eight doses of Mixed Infection Phylacogen during nine days. He had not been benefited by the usual anti-rheumatic drugs but after the administration of the Phylacogens showed rapid improvement in his joints and in his general condition and is now well. The man was also given digipuratum hypodermically.

CASE 2. A child of 8, afflicted for two years, and having an acute exacerbation in both hips and one knee, received eight doses of thirty minims each during ten days. His pain was relieved after two doses, although it now recurs slightly in stormy weather. The boy, treated over three months ago, says that he can now run for the first time in two years.

CASE 3. A girl of 22, who had had several attacks of acute infectious arthritis in the past ten years, and had a greatly dilated heart. An acute exacerbation in both wrists began January 1. On salts of salicylic acid for four weeks with only slight improvement. Six doses of Rheumatism Phylacogen were given during the first eight days of February. The joints cleared up quickly but the heart did not improve nor did the temperature fall. She died in April without recurrence of joint symptoms. The doses of Phylacogen were large and noticeably disturbed the heart action and prostrated the patient despite the fact that digitalis was given coincidently.

CASE 4. A woman of 46, who has had two previous attacks of infectious arthritis. The present attack, generalized and acute, has lasted 11 days. She received nine doses of Rheumatism Phylacogen in 17 days, without any improvement. It is fair to say, however, that the average dose was less than 25 minims. The dosage was not increased because the patient was weak and anemic and reacted smartly to even this small dose.

CASE 5. A boy of 20 had, one year ago, acute infectious polyarthritis, which kept him in bed one month. Four months ago he began to have pain in his shoulders and wrists and when first seen he had an acute infection of one metacarpo-phalangeal joint. He received ten injections of Rheumatic Phylacogen, of from 3 to 5 c.c. each, on ten successive days. After three injections all his symptoms disappeared; they have not reappeared in the four weeks that have since elapsed.

CASE 6. A woman of 40 had had for 15 months pain and tenderness in her right foot, aggravated by walking. She had been treated for flat-foot without much benefit; at the time of my first examination there was definite heat and tenderness over the mid-tarsal joint of the right foot. She was given, on fourteen successive days, eight small doses of Rheumatism Phylacogen followed by six large doses of 10 c.c. each. The small doses seemed ineffective but after the second of the large doses the pain began to subside and now, four weeks after treatment, the patient has no discomfort for the first time in a year. She remained in bed for the last week of treatment because, in this particular case, the toxic reaction was very exhausting.

CASE 7. A man of 34 who for one week had had acute polyarticular arthritis and dry pleurisy, following tonsillitis, was given 3 c.c. Rheumatic Phylacogen. Immediately pain and swelling decreased. Two days later 5 c.c. caused a very marked local and constitutional reaction. There was marked edema of the scalp, edematous areas on various parts of the trunk and extremities, adenitis of the parotid and submaxillary glands. His condition became temporarily grave, but improved in a few days. Seven and ten days later, respectively, two further injections of Phylacogen were made without untoward incident. Joint symptoms disappeared after the second injection, reappeared a week later and left again after the fourth injection. The heart and kidneys were not especially disturbed by the toxemia.

CASE 8. A woman of 35, with generalized arthritis that had persisted four months in spite of the use of salicylates, local applications, etc. She was given twelve doses of Rheumatic Phylacogen, of 10 c.c. each, during 21 days. Her doctor reports that there was little or no relief for eight or nine days but that thereafter "the Phylacogen accomplished what nothing else had done." Save for slight stiffness she has now been well for eight weeks.

CASE 9. A woman of 42 had suffered for 20 years from chronic, generalized arthritis. She was treated with 20 c.c. of Gonorrheal Phylacogen and 75 c.c. Rheumatic Phylacogen. The first injection was 5 c.c., subsequent daily injections 10 c.c. To each she reacted markedly. Before treatment the patient had been confined to the house for a year. She can now walk a mile with little pain although her joints are quite stiff. Ten days after beginning treatment she removed a ring which, because of an enlarged phalangeal joint, she had been unable to take off during the previous year.

CASE 10. A woman of 57, with generalized chronic arthritis for ten years, complicated by chronic asthma, received five doses of Mixed Infection Phylacogen, followed by 16 doses of Rheumatic Phylacogen during thirty days. The former was not followed by improvement. During the administration of the latter the swelling nearly disappeared and the pain decreased. The patient can now flex her wrists for the first time in six years. Her physi-

cian states: "When we consider the aggravated character of the case, the results already obtained are no less than wonderful."

Case 11. A woman of 30 who had had one previous attack of arthritis. The present attack was generalized, chronic and of four years' duration. Suffering was at times severe. When first seen, the patient's jaws could be opened only about one-fourth inch. Wrists, fingers and knees were badly swollen. She could not get her hand to the back of her head nor get down on hands and knees. She had lost much weight and was nearly helpless. Salicylates, colchicum and potassium iodide seemed to relieve but did not stop the progress of the disease. The woman was given 10 c.c. of Rheumatic Phylacogen daily for eleven days. After four doses she could comb her hair; after seven she could get down on her hands and knees; after eleven she could open her mouth one inch. She was prostrated after each injection but two weeks after the final one she was able to do her own work. She is now gaining in strength and weight, and motion in the affected joints is increasing.

Case 12. A man of 45, with chronic generalized arthritis of two years' duration, was given eleven doses of Rheumatic Phylacogen during twelve days. After seven doses the pain and swelling began to disappear. The man is now practically well, and has had no recurrence, although seven months have elapsed.

Case 13. A women of 45, with stiffness and soreness in back and shoulders. Limitation of motion in lumbar spine. At her own request she was given five doses of Rheumatic Phylacogen during nine days. There was no improvement. The doses were 2 c.c. each and to these she did not react. The diagnosis was toxemic arthritis following intestinal stasis.

We may say, roughly, that six patients recovered completely from joint symptoms, four were much relieved, one was relieved and two were not relieved.

The two that were not relieved, please note, received small doses, 25 minims in one instance, 2 c.c. in the other. The manufacturers advocate a dosage of from 5 to 10 c.c. If we include these two cases, we find that, after the administration of Phylacogen, there has been benefit in 84% of our patients; if we exclude them we have: Cured, 55%; much relieved, 35%; relieved, 10%.

Note further that at least four cases failed to respond to salicylates and other drugs often given in arthritis; that there has been quite as much improvement in long-standing cases as in those of recent inception; that at least seven months may elapse without recurrence (Case 12); that Rheumatic Phylacogen sometimes acts more favorably than Mixed Infection Phylacogen (Case 10); that the Rheumatic Phylacogen may not relieve an accompanying endocarditis (Case 3), but that once (Case 1) not only an endocarditis but also the involved joints were relieved subsequent to the use of Mixed Infection Phylacogen. Case 6 illustrates the fact that small doses are often ineffectual at the beginning of treatment. Case 7 illustrates an extreme reaction.

Group Two. Gonorrheal Arthritis.

Case 1. A man of 40 with an acute infection of the knee, existing for ten days, received five doses of Gonorrhea Phylacogen, 3 c.c. each, during eighteen days. Additional treatment consisted of immobilization and hot applications. The patient had a marked general reaction after each dose as well as local reactions at the site of injection and in the knee-joint. Three weeks after the initial dose the knee was nearly normal in size and practically free from pain and swelling. It was several weeks longer, however, before the patient could walk without the aid of a cane, because of stiffness. Aspiration of the knee-joint procured sterile pus. There was no urethritis while the patient was under observation.

Case 2. A man of 28 for ten days had had an acute arthritis of the right knee, following gonorrhea. He was given 15 c.c. of Gonorrhea Phylacogen in three equal doses, at three day intervals. Rest and antipyretics were employed. Nine days after the initial injection the knee was free from pain, tenderness and fluid. An urethral discharge appeared after the first injection but quickly subsided.

Case 3. A man of 24, with subacute, polyarticular arthritis, probably gonorrheal, which had persisted for two months. During these two months he had been given aspirin, potassium iodide, urotropin and other drugs by mouth; five subcutaneous injections of gonococcus vaccine had been made. There had been no response. He was then given thirteen doses of Gonorrhea Phylacogen in sixteen days. Pain was relieved and the joints became less swollen. His physician feels that the Phylacogen helped him but did not cure him. The first two doses were 5 c.c. each, the remainder 10 c.c.

Case 4. A man of 33, with gonorrheal arthritis of eight months' duration, his fourth attack in four years. Gonorrhea Phylacogen was administered as follows: 3 c.c. daily for three doses, 5 c.c. every second day for six doses, and 10 c.c. every third day for two doses,—nearly 60 c.c. in all. Before treatment he hobbled with the aid of two canes and could attend to business only three hours a day. His joints are now smaller, he walks without a cane and works ten hours a day. He still has some pain in his toes but little or none elsewhere. He had failed to be helped with salicylates and other anti-rheumatic expedients.

Case 5. A man of 44 had had for four years a chronic generalized arthritis, probably gonorrheal. He received 30 c.c. Gonorrheal Phylacogen and 90 c.c. Rheumatic Phylacogen in doses of from 5 to 10 c.c. each, during a period of three weeks. There followed definite improvement in joint motion and alleviation of pain but the patient reacted so severely to the treatment that he refused to continue it. He is now relieved but his former symptoms have returned in part. Previous to the use of Phylacogens,

resort had been made without material benefit to gonorrheal vaccine, fibrolysin, a polyvalent vaccine and to hydrotherapy.

CASE 6. A man of 25 with polyarticular, subacute arthritis. He had had gonorrhea two years before and at the beginning of treatment had a double seminal vesiculitis. The patient received twenty injections of Gonorrhea Phylacogen, of 10 c.c. each, during forty days. He improved slowly and now, five months after treatment, is practically well. The benefit was not striking, however, and the patient thinks his greatest relief followed stripping the vesicles, to which procedure resort was made at the conclusion of the Phylacogen injections.

CASE 7. A woman of 65, with polyarticular, chronic arthritis of seventeen years' duration. Many joints were ankylosed. She was given fifteen doses of Gonorrhea Phylacogen, but while her general health improved, there was no change in the joints.

In this group we have: Two patients much relieved, three relieved, and two not relieved. One of the unrelieved suffered from ankylosis rather than arthralgia. The results in Group 2 are not so striking, however, as those in Group 1 and I am not sure that the Gonorrheal Phylacogen is more specific than a gonorrheal vaccine or than an antigonococcus serum. If the Gonorrheal Phylacogen has virtue it manifested this quality most obviously in Cases 2 and 4.

GROUP THREE. ASTHMA AND BRONCHITIS.

CASE 1. Bronchial asthma in a man of seventy, which had made him a chronic invalid for five years. He was given twelve maximum doses of Mixed Infection Phylacogen during thirteen days, with great relief after two doses. This was two months ago and recently the asthma has returned, although it incapacitates him less than it did before his treatment.

CASE 2. A man of 62, who had had a more or less persistent bronchial asthma for forty years, has been under treatment three months. He has had nine bottles of Mixed Infection Phylacogen,—at first in large doses daily or every second day, more recently 2 c.c. each week. The patient was much relieved after a few doses, but still has moderate symptoms, which are aggravated periodically by alcoholic excess.

CASE 3. A woman of 69, who has had chronic bronchitis and asthma for nearly forty years and now has, also, a worn-out heart. She was given 80 c.c. of Mixed Infection Phylacogen during three weeks, in doses of from 5 to 10 c.c., along with digitalis and nitroglycerin. Five months have elapsed since the administration and today she can walk better and farther than she has been able to for thirty years past. She still has a slight cough and wheezes in damp weather.

CASE 4. A woman of 36, who for the past ten years has had an acute asthmatic attack about once a month, has been given 110 c.c. of Mixed Infection Phylacogen during three months. The injections were made daily for a week, then every second day for a week, then every third day for two weeks. At present her physician is administering 3 c.c. once in three weeks. The patient can now walk to and from her work. She wheezes and coughs at times but has had no acute attack in three months.

CASE 5. A woman of 27 for the past four years has had, annually, four or five attacks of acute bronchitis with asthma. During the latest attack she was given 70 c.c. of Mixed Infection Phylacogen,—at first in doses of from 5 to 10 c.c. daily, later in doses of 3 c.c. weekly. After two weeks the symptoms disappeared and there has since been no cough, wheezing or dyspnea.

CASE 6. A woman of 46 for the past ten years has been obliged to give up her work for a few days every five or six weeks on account of severe attacks of bronchial asthma. In February 50 c.c. of Mixed Infection Phylacogen were given in doses varying from 2 to 8 c.c. She now has no cough, has had no acute attack in three months and has been able to work steadily.

CASE 7. A man of 41 has had chronic bronchial asthma for the past three years. He received maximum doses of Mixed Infection Phylacogen daily for one week, then smaller doses every second day until he had taken 70 c.c. in all. For two weeks after the first injection the patient had complete relief, only to relapse after a debauch. At present he is rather better than formerly, although he still has some asthma. He lost fifteen pounds in weight during the administration of the Phylacogen.

CASE 8. A man of 60, with bronchial asthma of many years' standing, received eight doses Mixed Infection Phylacogen, of 10 c.c. each, on eight successive days. There was apparently no change whatsoever in his asthma. He reacted at the site of injection but had no systemic reaction.

CASE 9. A woman of 26 had had for three months a persistent bronchitis and dry pleurisy, following influenza. She was given two doses of Mixed Infection Phylacogen, 2 c.c. each, two days apart. In two weeks she was attending to her regular duties, free from symptoms. She took no drugs except cough sedatives.

CASE 10. A woman of 42, with acute bronchitis of four days' duration, received on successive days three doses, 3 c.c. each, of Mixed Infection Phylacogen. The woman was well in two weeks and her physician states that this attack cleared up more quickly by two or three weeks than had previous attacks. Heroin was administered coincidently.

CASE 11. A man of 41, who in the past four months has had three attacks of bronchitis. The third attack, had persisted for five weeks when the injection of Mixed Infection Phylacogen was begun. The patient received 5 c.c. every third day for two weeks, then 3 c.c. every fifth day for three weeks. After five weeks the cough and wheezing were no longer in evidence. This man had a chronic conjunctivitis which became acute after the third injection.

So far as bronchial asthma is concerned, Mixed Infection Phylacogen would seem to have some effect whether the disease be acute or chronic. Of the eight patients we may say conservatively, that three were much relieved and four relieved. Considering the obstinacy of asthma in this climate, this showing is very fair. Alcoholic excess seems definitely to militate against continued improvement, and there is certain evidence in favor of following treatment over a considerable time with gradually decreasing dosage.

GROUP FOUR. PLEURISY.

CASE 1. A woman of 67, who for four months had suffered with dry pleurisy. She had been treated by five different physicians without great benefit. After the initial injection of 3 c.c., Mixed Infection Phylacogen, there was cessation of cough and pain. These symptoms returned on the third day but were relieved by a second dose. The patient has now been well for three months. No drug was given except heroin.

CASE 2. A little girl of three had severe dry pleurisy following measles. When it had persisted for three weeks, she was given 1 c.c. Mixed Infection Phylacogen, followed by three doses of 2 c.c. each on every third day thereafter. Both the systemic and local reactions were marked. All symptoms disappeared after the third dose and have not returned. No drug except strychnia was given.

GROUP FIVE. PNEUMONIA.

CASE 1. A man of 35 with pneumonia of the lower left lobe existing for four days. He received one injection of Pneumonia Phylacogen, 1 c.c. in amount. His crisis followed in about six hours and he made an uneventful recovery.

CASE 2. A man of 60 for two days had had involvement of the right lowest lobe. He was given Pneumonia Phylacogen every eight hours until six doses had been given. The initial dose was 1 c.c. Each dose thereafter exceeded the preceding dose by 1 c.c. After the first dose his temperature jumped from 101° to 105°, but thereafter the constitutional reaction was slight. The patient was a long sufferer from cardiac asthma and according to his physician had every reason to die. Nevertheless, he made a good recovery.

CASE 3. A man of 25 with a pneumonic focus in each lung of two days' duration. He was given seven doses of Pneumonia Phylacogen, averaging 2 c.c. each, during ninety-six hours. Administration was discontinued for five days and he then received 1 c.c. every eight hours for six days. There followed a gradual drop in temperature but no crisis. The pneumonia began, however, during an attack of acute glomerular nephritis and this kidney lesion doubtless modified his chart. The nephritis abated steadily during the administration of the Phylacogen and the patient is now well.

CASE 4. A woman of 24, with right lobar pneumonia of three days' duration, was given 3 c.c., and on the following day 5 c.c., Pneumonia Phylacogen. On the fourth day of the disease the patient's temperature was 104.5°; on the morning of the fifth day 100° on the afternoon of the fifth day 99.8°, and on the sixth day normal. Antipyretics and heroin were administered coincidently.

CASE 5. A woman of 49, with lobar pneumonia of two days' duration. On the second day she received 2 c.c. Pneumonia Phylacogen and on each of the two succeeding days 5 c.c. Her temperature dropped two hours after the first injection and on the sixth day was normal. Convalescence was uneventful.

Personally, I think Pneumonia Phylacogen deserves further trial in pneumonia. Whether, in the long run, it will prove more or less effective than a pneumococcus vaccine remains to be seen. Possibly it derives all its virtue from the inclusion of the pneumococcus in the mixture. It is important to note (Case 3) that the Phylacogen had no untoward effect on a complicating nephritis.

GROUP SIX. MISCELLANEOUS.

CASE 1. Streptococcus septicemia, accompanying an infection of the hand, in a man of 60. The infection had existed six days. He was given six doses of Mixed Infection Phylacogen during the succeeding five days. The hand was incised and drained. His physician reports that there was a "definite improvement in the patient's condition" and that he is now well.

CASE 2. Gonorrheal vaginitis in a child of 5. She received eleven doses of Gonorrheal Phylacogen during ten weeks. Douches and argyrol injections were also employed. After two or three consecutive injections the leucorrhea invariably stopped, only to recur in two or three weeks. The pus was negative for the gonococcus after the last dose of Phylacogen but a mixed infection persisted.

These two cases speak for themselves. The first proves nothing. For the second one, please observe that the result was no more favorable than may be obtained with an autogenous gonococcus vaccine.

Scrutiny of these forty cases leads to certain conclusions, which are, I think, just and well grounded:—

1. The manufacturers of Phylacogens may be blamed for maintaining absolute secrecy concerning the ingredients of the mixtures. The manufacturers have in my experience tended to publish only their successful results. The price of Phylacogens prohibit their use extensively among poor people.

2. In certain diseases we may obtain through these preparations more relief than has hitherto been obtainable by other means. These benefits more than make up for the unpleasant reactions

that follow administration, although these reactions may be severe.

3. With adequate doses we can relieve or cure a large percentage of cases of infectious arthritis, both in its acute and its chronic phases. While it is true that a vaccine made from the causative organism might work equally well, it is also true that our present knowledge rarely permits the isolation of this organism; indeed, the original focus of infection is often doubtful.

4. Gonorrheal Phylacogen is not so effective as Rheumatic Phylacogen,—perhaps no better than its humble but honest brother, the vaccine.

5. Mixed Infection Phylacogen may be employed in any case of bronchial asthma that is not readily relieved by other and simpler methods.

6. In bronchitis and pleurisy the value of this basic Phylacogen is possible; but not certain.

7. In pneumonia the use of Pneumonia Phylacogen will probably lower the death-rate. It may be given with relative safety even to patients moderately deep in the toxemia of the disease, but it should be given in small doses, averaging, at the start, 1 or 2 c.c. subcutaneously.

8. In cases where the patient has had several successive attacks of a given infection, the outlook, with this treatment, is quite as good as in cases where the attack is the initial one.

9. Further involvement after beginning treatment is rare. It occurred in only two cases out of forty: one a gonorrheal arthritis, one an infectious arthritis.

10. For two or three days the local reaction at the site of injection may be very annoying and painful. Frequent applications of white wash relieve to a certain extent.

11. Each injection must be made in a new spot, preferably in the abdominal wall or beneath the scapula. Ordinarily injections are made subcutaneously; intravenous injections, while sometimes more effective, require greater skill. The site of injection may be frozen with ethyl chloride or anesthetized with cocaine, but this is not necessary if a fine needle is used.

12. Injections may usually be given in a physician's office, if the patient is instructed to go home directly and to keep quiet. In only a small percentage of cases is rest in bed necessary.

13. Uniform results can be obtained only after considerable experience. In a limited proportion of cases the proper administration of Phylacogens requires that one have special knowledge derived from fairly extensive work in this field. It is a question whether the promiscuous use of Phylacogens may not have undesirable results.

14. The age of a patient may apparently be disregarded; but a bad heart demands that one use extreme caution. Nephritis, in all probability, does not contraindicate this treatment.

15. In about three-fourths of the cases there will be a more or less marked constitutional reaction. It is not uncommon for an individual to react smartly to the first dose or two, but only slightly or not at all thereafter. A marked reaction may be very severe; at such a time a patient of mine looked not unlike one who has renal colic. He described his symptoms thus: "Injection at 3.30 p. m. Soreness in region of injection appeared at 6 p. m. At 6.40 dizziness commenced. About ten minutes later felt chills through the body, which caused shivering and increased pulse. Was very hot and faint. This continued until 8.10. Had to be helped upstairs to bed on account of intense local soreness. Could not undress alone. Slight nausea and headache continued through most of the night. Arose at 9 a. m. with headache gone and temperature apparently normal. General improvement in joints, arms and back plainly noticeable."

16. A physician who wishes his patient to have a peaceful night should administer Phylacogens in the forenoon.

17. Small doses at the beginning of treatment are not always effective; but once a disease is under control, it may be advisable to continue treatment for a time with an occasional small dose. The amount and frequency of the injections must depend on the amount of reaction, the change in symptoms and the degree of prostration. A dose which causes no reaction may not be effective.

18. Many of the cited cases are so recent that no worthy predictions can be made concerning possible or probable recurrence.

In a recent paper Stone[3] remarked: "I am aware that many physicians may be able to testify from their experiences that good results have been obtained from the use of these preparations (Phylacogens). So are we familiar with many vaunted but now forgotten cures. The fact remains that such improvement as seemed to follow in certain instances has probably resulted in spite of the treatment, not because of it."

This may be true and the observation of clinical results is notoriously inaccurate. Yet from our findings in a small series of cases I am tempted to ask critics to suspend judgment for a time,—to use the same discretion in condemning a new therapy that they would unquestionably use in accepting it.

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Clinical Department.

BULBAR PARALYSIS IN TYPHOID FEVER.

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On Sept. 22, 1910, a patient was admitted to the wards of the East Medical Service in the Massachusetts General Hospital, with the following history:—

Case 172,090.[1] 40, male, white, married. Born in Italy. Fifteen years in Massachusetts. Stationary engineer.

Family History. Negative for tuberculosis or cancer. Patient has been twice married. He has two healthy children. His wife has had no miscarriages.

Previous History. The patient does not remember having been sick in bed. Three months ago he began to feel weak and to have occasional headaches. Since then he has lost considerable weight. Two months ago he noticed a temporary difficulty in swallowing, and a thickness in speech which passed away quickly. There is no history of venereal disease. The patient has had no fits nor paralysis.

Habits. His appetite and digestion are usually good. His bowels move regularly. There is no history of nocturia, dyspnea nor cough. He drinks and smokes moderately.

Present Illness. Five days ago the patient was suddenly seized with a severe right frontal headache. There was no vomiting nor chill. Two days later he noticed a sudden difficulty in swallowing, accompanied by marked thickness of speech, and weakness of both arms and legs. These symptoms have increased steadily. This morning his neck feels stiff.

Physical Examination. The patient is well developed and powerfully built. The skin is clean, moist, and warm. The mucous membranes are of good color. There is no tenderness over the ears, the mastoid processes nor the frontal sinuses. The tongue has a heavy white coat. The teeth are good, but poorly cared for. The throat is uniformly reddened. The tonsils are not hypertrophied and do not show an exudate. There is no general superficial glandular enlargement.

The cardiac impulse is diffuse. The left border of relative dullness on percussion is 9.5 cm. from the mid-sternal line in the fifth interspace. No right-sided enlargement is made out. The upper border of relative dulness is in the third interspace. The action is regular and rather rapid. The heart sounds are of good quality. A faint systolic murmur is heard over the precordia, not transmitted to the axilla or back. At the base, the aortic second sound is slightly louder then the pulmonic.

The pulses are equal, regular, of good volume, and synchronous at the wrist. All beats are transmitted. The systolic blood pressure is 150 mm. The peripheral vessels are not thickened nor tortuous.

The chest wall expands well and equally. The percussion note over both lungs is resonant. The breath and voice sounds are normal. No râles are heard.

The abdomen is level, soft, tympanitic throughout. No masses or areas of tenderness are made out. The liver dullness extends from the fifth rib to the costal margin, the edge is not felt. The spleen is not enlarged to percussion, the edge is not felt. The kidneys are not felt. There is no costo-vertebral tenderness.

Examination of the nervous system shows no loss of sensation. The patient is conscious and not in acute pain. There is no stiffness of the neck. Fundus examination is negative. The movements of both legs are weak. The superficial reflexes are present. There is no Kernig's sign nor ankle clonus. On the left Babinski's phenomenon is suggested. There is evidence of partial or complete paralysis of the muscles supplied by the third, sixth, seventh and twelfth cranial nerves, more marked on the right side.

The blood examination shows 95% of hemoglobin; 9000 white cells, of which 58% are neutrophilic, and 42% basophilic. The red cells are normal.

The urine passed during the twenty-four hours following admission has a specific gravity of 1015. There is a slight trace of albumin, no sugar. The sediment contains hyaline and granular casts.

The temperature is 101° F., the pulse-rate 100, and respiration 25 to the minute.

Subsequent Notes. On the day following admission, the patient developed marked dyspnea with breathing of the intercostal type, suggesting partial paralysis of the diaphragm.

Two days after entry the patient was unable to swallow and bilateral deltoid paralysis was noted. The legs were nearly immovable. No leg reflexes were obtained.

The patient died early the next morning, respiration stopping before the heart beat. He was conscious until death.

While under observation the temperature varied between 101-103-5° F. The pulse between 100-110, and respiration between 25-40.

The urine was small in amount but was passed without difficulty. The bowels moved only as the result of an enema. No blood cultures or agglutination tests were made.

SUMMARY.

A well developed man, previously in good health, was seized suddenly with fever accompanied by difficulty in swallowing and weakness of the legs. He died eight days after the onset of his illness with symptoms suggesting bulbar paralysis and an increasing paralysis of areas supplied by spinal, as well as cranial nerves. The course of the paralysis was not typically ascending or descending, but diffuse, suggesting a rapid involvement of one nerve area after another.

An autopsy[2] was made 56¾ hours after death. The following noteworthy features are recorded.

The meninges, vessels of the circle of Willis, the sinuses and middle ears on section are not remarkable. The brain weighs 1385 gms. Section of tissue from the hemispheres and brain stem shows nothing to record. The upper end of the cervical portion of the cord is not remarkable.

The small intestines to the region of the ileum are negative. The mucosa in this area shows scattered smaller and larger grayish elevated plaque-like masses of roughly round to oval shape and rather firm. Some of these have a flat button-like appearance. There is hyperplasia of the mesenteric lymph glands and of the spleen. Cultures from the spleen show many colonies of Gram decolorizing non-gas producing motile bacilli morphologically like typhoid, and giving a positive agglutination reaction against an anti-typhoid serum diluted 1-100.

The anatomical diagnosis of typhoid fever, therefore, was made, the clinical picture being that of an acute bulbar paralysis.

Various standard text-books[3, 4, 5, 6, 7] of medicine, pathology and neurology mention that bulbar paralysis is among the rare complications of typhoid fever. The following cases have been reported.

Fritz[8] writes that on the tenth or twelfth day of a typhoid fever, a female patient was suddenly seized with an incomplete paraplegia. The paralysis extended upwards, first affecting the arms and then respiration, "so that a grave danger threatened the patient's life." After bleeding, however, gradual recovery took place although complete motility was never regained.

Curschmann[9] describes in detail the following case:—

A male patient 31 years old with unimportant family and previous histories was admitted to the hospital. Six days before entry he had a violent chill followed by weakness and pain in the legs.

General physical examination was negative except for an enlarged spleen. The patient could not move legs, forearms, hands nor fingers, but could move slightly both shoulders. The skin reflexes were diminished. The knee and ankle jerks were absent. On the following morning he was unable to extend his tongue. The left facial nerve area was partially paralyzed. In the evening he died.

The autopsy findings showed an enlarged spleen and a small intestine characteristic of typhoid. The gross appearances of the brain were not especially abnormal. Cultures from the spleen, the cervical cord and medulla showed colonies of typhoid bacilli. Microscopic examination of the brain and cord showed many typhoid organisms either isolated or in groups with but slight tissue changes. Curschmann considered that the symptoms were due to a disturbance in brain function caused by the bacillary invasion.

Eisenlohr[10] reports three interesting cases of typhoid with symptoms of bulbar paralysis. All the patients were young and severe cases. Two lived, one died on the seventeenth day of the disease. All showed involvement of the bulbar nerves, and marked motor weakness of the entire body musculature. Other nerves were affected variously. Two cases recovered entirely. In the fatal case, autopsy showed typical typhoidal changes in the intestine and mesenteric lymph glands. Cultures from the medulla produced no typhoid organisms, but a few colonies of a yellow coccus, not identical with either staphylococcus aureus or citreus. Microscopical examination of the brain was not remarkable except for the presence of organisms. Eisenlohr's conclusions were similar to Curschmann's.

Henneberg's[11] case is that of a man 26 years old, of unimportant previous history. Eight days before admission to the hospital he was taken sick with headache and general lassitude. At entry he was slightly delirious. His spleen was palpable, otherwise his general physical examination was not remarkable. He was, however, unable to move his tongue or lips and could not swallow. The Widal reaction was negative. The cerebro-spinal fluid was normal. A week later there developed slight ataxia of the arms and legs. On the tenth day after entry evidence of bulbar involvement became suddenly augmented. The patient collapsed and died. The autopsy showed a typical typhoidal intestine and spleen, from which cultures of the typhoid bacillus were grown. The brain, cord, medulla and vagus nerve showed nothing abnormal either by culture, by gross examination or by careful histological study. A toxic origin for the symptom complex was assumed.

Mori[12] saw a patient 25 years old who entered the hospital with typhoid fever, as proven by a positive Widal reaction and typhoid bacilli found in the feces. His family and previous histories were negative, except for beriberi ten years previously. Three weeks after the onset of fever, paralysis of both legs occurred, later involving the abdomen, diaphragm, arms and intercostal muscles. The paralysis progressed for three weeks, and then terminated fatally. No autopsy was made. Mori considered the clinical manifestations to be of toxic origin.

Symptoms of bulbar paralysis in typhoid fever have been described as a late complication developing after defervescence has begun.

Leudet[13] mentions a case in which, toward the end of the third week, when convalescence seemed beginning, a woman who had been through a typical typhoid fever, suddenly was seized with paralysis in both legs. This extended progressively upwards, ending with paralysis of respiration and asphyxia. There was integrity of intelligence to the moment of death, which occurred seven days after the onset. At autopsy the brain and cord were not abnormal. In the intestine there were typhoidal ulcers, some of which were partially scarred.

Kümmell[14] cites the following. A patient 25 years old had been ill for six weeks with lassitude, fever, loss of appetite and weakness of the legs. Two days before admission to the hospital, loss of strength was noticed in the back, followed by weakness of the arms. An acute ascending motor paralysis followed, producing death in four days from vagus involvement.

Autopsy showed typhoid scars in the intestine. Small microscopic hemorrhages were found

scattered through the medulla and brain at various levels. They appeared to be of varying age. Kümmell believed that these changes might be due to bacillary emboli. However, there is no record of any cultures, nor were any organisms seen.

Another case is reported by Pitres[15] and Vaillard. Three days after defervescence in typhoid the patient developed broncho-pneumonia. Nine days after the temperature had become normal, paralysis of the legs occurred. An ascending paralysis rapidly followed, involving the abdomen, arms, face, and finally the region of distribution of the bulbar nerves. The patient died with evidence of respiratory insufficiency.

The autopsy notes are especially interesting. The intestine and spleen showed typhoidal lesions. The gross and microscopical appearances of the medulla oblongata and cord were not remarkable. Various of the peripheral nerves, however, showed atrophied fibres with the myelin sheaths in various stages of fragmentation. The authors believe that the changes were produced by the typhoid toxin. In this case, for some reason, the nerves generally had been affected, causing a clinical picture of acute ascending paralysis.

Genies[16] describes a case in a man, beginning with difficulty of movements of the feet four days after defervescence from typhoid. By the following day paralysis of the legs was complete; on the third day the arm and trunk were affected. On the fifth day the patient could not speak; there was paralysis of respiration and the patient died asphyxiated. No autopsy was made.

Thus in the literature there are twelve cases of typhoid fever in adults complicated by symptoms of bulbar paralysis. In eight the manifestations occurred at the height of the disease, in four after convalescence apparently had begun. In two the disease started suddenly with a chill and various nervous manifestations. In the others there was nothing to suggest an atypical typhoid fever. Eight of the patients died.

Symptoms of paralysis began acutely or gradually, and lasted from a few days to several weeks. In none of the cases did the time of the onset of the paralytic symptoms after the beginning of the disease bear any relation to its eventual outcome. In the fatal cases, the progress of the paralysis was more rapid than in those recovering.

In one case the paralysis was descending and in one diffuse. All the others were cases of ascending paralysis.

Seven cases were examined pathologically. In all, typical typhoidal changes were found in the intestines, spleen and mesenteric lymph nodes. In all the gross appearances of the brain and cord were normal.

Of the five cases which were submitted to thorough histological and bacteriological study, two showed nothing abnormal in the brain or cord. One, however, showed atrophic changes in various of the peripheral nerves. One case had vascular lesions consisting of scattered microscopic hemorrhages at different levels of the medulla and brain. Two cases showed positive bacteriological findings. From the brain and cord of one, typhoid bacilli were recovered, from the other, an unidentified coccus not identical with either the staphylococcus aureus or citreus. The organisms were seen histologically in scattered foci through the brain and cord without any marked tissue reaction.

The clinical picture encountered in several of the cases, suggests strongly an acute poliomyelitis. This cannot be definitely excluded. From the facts that in all cases examined, typical typhoidal lesions were found in the intestines and spleen, and that in no cases were pathological changes observed which suggested anterior poliomyelitis, it seems justifiable to believe that the symptom complex was due to the original infection.

On the whole, acute bulbar paralysis must be recognized as being a rare complication of typhoid fever. The symptoms usually suggest at the onset an acute ascending paralysis, developing either at the height of the disease or after convalescence has begun, and ending with evidence of bulbar involvement. Recovery may take place after a prolonged illness, or death may occur within a few hours.

The varying pathological findings described show that such a clinical picture may exist without evident tissue change in the nervous system or be due to peripheral nerve lesions, or to a hemorrhagic encephalitis analogous to that found in other forms of infection, or finally to the presence of organisms in the brain, whether typhoid bacilli or secondary invaders, in sufficient numbers to cause the symptoms encountered.

We wish to thank Dr. J. H. Wright for allowing us the use of the Pathological Records of the Massachusetts General Hospital, and Mr. Osamu H. Terada of the Harvard Medical School for a translation of the Japanese reference.

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THE BOSTON
Medical and Surgical Journal

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THE MORTALITY OF FEMALE COTTON-MILL OPERATIVES.

THERE has been recently issued as a Senate document (No. 645) the fourteenth of a series of nineteen volumes embodying an exhaustive report on the condition of woman and child wage-earners in the United States. This volume, prepared by Dr. Arthur R. Perry, deals with the causes of death among woman and child cotton-mill operatives, and presents the results of a study "undertaken to secure the most accurate information obtainable respecting the death hazard to males and females incident to work in cotton mills, as compared with the corresponding hazard among individuals of like age" engaged in other occupations. This study was carried out in Fall River, Mass., Manchester, N. H., and Pawtucket, R. I., the three largest cotton manufacturing cities in New England. The age period, 15 to 44 years, was selected for special intensive investigation.

Within this age-period it was found that tuberculosis was the most prevalent ultimate or immediate cause of death. It was also found "that the Irish, in each age, sex, and occupation group, almost without exception, presented a higher death rate than any other race or people." The numerical results of his statistic studies are summarized by the author in part as follows:—

1. "The effect of cotton operative work upon health, as reflected in the death rate, differs widely between the sexes. For the 30-year period from 15 to 44, in which the great majority of the operatives are found, the death rate of the males and females in the general population are almost identical the male rate being 6.19 and the female rate 6.16. A comparison of the death rates of male and female non-operatives shows the rate for males to be 22 per cent. in excess of that for females (male rate, 6.48; female rate, 5.31).

"When, however, the comparison is confined to the death rates of operatives, the female rate shows an excess of 33 per cent. over the male (male rate, 5.74; female rate, 7.63) despite the younger ages of the female operatives.

2. "In the age groups within which operatives and non-operatives are fairly comparable, female operatives have a decidedly higher death-rate than non-operatives. This is most marked in respect to tuberculosis, the death-rate of female operatives from this cause being in general more than twice that of non-operatives, and in some of the race and age groups running up to many times as high. Thus in the age groups 15 to 24 years, 25 to 34 years, and 35 to 44 years, the death rates from tuberculosis per 1000 were respectively 2¼, 2½ and five times those among women in the same groups outside the cotton industry.

3. "An examination of the different factors which might affect the death rate, especially from tuberculosis, such as native or foreign birth, tuberculous kindred or intimates, overcrowding, sanitary condition of homes, etc., fails to show any such massing of unfortunate conditions among female operatives as would explain their unvarying higher death rate.

"Whether the harmful effects of operative work are greater than those of other industrial employments, and whether they inhere in cotton textile work as a whole or are due to certain occupations carried on within the mills, are questions for further investigations to answer. This has established the fact of the high mortality among female cotton operatives and of their special susceptibility to tuberculosis."

In his special consideration of tuberculosis, Dr. Perry says:—

"The fact that operatives almost without exception in each locality and in the various age, sex and race groups show such an undue proportion of deaths from tuberculosis is almost conclusive proof of a casual connection between operative work and the disease. The coincidence between work in the cotton mills and a death rate from tuberculosis higher than that of a corresponding class of non-operatives would not be found in so many and such diverse groups were it a mere coincidence. It seems hardly open to question that operative work predisposes to tuberculosis and that its effect in this direction is greater among females than among males."

The second most important cause of death among female operatives was found to be cancer, and the third parturition.

The report presents an immense amount of painfully gathered statistics. The results are essentially such as one would *à priori* have expected them to be. The conclusion of the whole matter seems to be that work in cotton mills is from a hygienic standpoint an undesirable occupation for women, especially for the Irish, whose racial predisposition to tuberculosis makes them particularly unfit to meet the environmental conditions of such employment.

SPIDERS IN MEDICINE.

For the past three summers there has been, along the new Charles River Basin water-front, an increasing plague of spiders, whose webs disfigure the iron railings of the esplanade, and who even make their way into the basement of neighboring houses, to the dismay of tidy housekeepers. These spiders, who presumably frequent the water-side in order to prey on mosquitoes and other insects which breed there, are abominable creatures.

"Most foul, as in the best they are,
But these most foul, strange, and unnatural."

They are not even plump, bloated, and comfortably vicious, like most spiders, but misshapen starvelings, scrawny, loathesome and altogether detestable.

By all tokens the spider should be a creature deserving great respect. Biologically she is supposed to represent the link by which the line of human evolution diverged from the insects. Morphologically, indeed, the spider and her congeners exemplify important structural advances over precedent forms of life. Ethically, as an example of industry, the spider in popular apologue has been coupled with the scriptural ant; and in the history of Robert Bruce, at least, has by her patient cunning not only conveyed an important moral lesson but thereby changed the fate of nations. Mythologically, however, in her origin is revealed the spider's essentially detestable nature, for it was into a spider, the most odious of conceivable forms, that Athena transmuted the Lydian maid whose pride in her weaving had provoked the resentment and hatred of the goddess of wisdom.

"Fitque caput minimum, toto quoque corpore parva est;
In latere exiles digiti pro cruribus haerent,
Cetera venter habet: de quo tamen illa remittit
Stamen, et antiquas exercet aranea telas."

In point of fact, the spider is one of the most cunning artizans of all the "long-legged spinners," and the fineness of her web makes it still of use in certain optical instruments, where it proves more delicate than any that can be woven by human skill. Collectively cobwebs have been used in medicine to check hemorrhage, and the spider herself, in medieval therapeutics, was supposed to possess great medicinal virtue. Spiders were prescribed to be eaten and as local applications, and were used as ingredients of many of the unutterable decoctions of necromantic polypharmacy. In anatomy, too, the spider has given her name to that elusive middle layer of the meninges, which dissectors always earnestly seek, but never observe. Yet exquisite though it be in point of workmanship, or when spread as gossamer on the grass of a dewy morning, the spider's web about human habitations speaks always of decay, negligence, untidiness and unthrift.

Many famous persons have been spider lovers and have collected, studied, protected and observed them. Kant and Mozart have been among these; yet, great as they were, it seems that there must have been something abnormal in their temperament which could find pleasant companionship in such creatures. Still more might be said of the perversion of spider-eaters, of whom several are recorded in ancient medical history who persisted for months in an exclusive diet of spiders. From our essentially arachnophobic editorial point of view such a course could be indicative only of hopeless mental alienation of advanced grade.

The spider is one of nature's scavengers and serves a necessary and desirable purpose among the checks and balances of animate existence. But in herself she is utterly loathesome and hideous, infinitely more so indeed than the lithe, beautiful, and elegant serpent, whom mankind is supposed to detest with perfect hatred. Shakespeare, like all artists, hated spiders, and it is significant that his most frequent mention of them is in *Richard III*, who is repeatedly compared in his malignity to a "bottled spider." And in *Cymbeline* Guiderius says to Cloten:—

"Cloten, thou double villain, be thy name,
I cannot tremble at it; were it Spider
'Twould move me sooner."

The spider is the archetype of malevolent, venomous evil. The only plague which was not sent upon the land of Pharaoh was a plague of

spiders: that would have been too much for even the Egyptians to tolerate with equanimity.

A RUSSIAN APPRECIATION OF CHARLES DICKENS' KNOWLEDGE OF CRIMINOLOGY.

KULISHEV, in the *Rousskaïa Mysl* for September, 1912 (quoted in *La Chronique Médical* for January, 1913), gives an interesting account of Dickens' insight into criminology. He says that in Barnaby Rudge, there is displayed a profound and perfect knowledge of the psychology of the criminal classes, and the progressive spread of crime to the masses from them. He quotes from Barnaby Rudge, the incidents of which were actually founded on the Gordon Riots: "Sober workmen, going home from their day's labor, were seen to cast down their baskets of tools and become rioters in an instant. More boys on errand did the like. In a word, a moral plague ran through the city. The noise and hurry and excitement had for hundreds and hundreds an attraction that they had no firmness to resist. The contagion spread like a dread fever. An infectious madness, as yet not near its height, seized on new victims every hour."

In the description of the murder of Nancy in Oliver Twist, Dickens brings up an interesting point in criminology, the murder being committed in a moment of extreme passion when the murderer, Sykes, was not, perhaps, in his right mind.

Kurella, the anthropologist, says that Dickens' descriptions show us the malefactor in a new light and with a psychology all his own. Long before Lombroso, Dickens had called attention to certain anthropological characteristics of the criminal classes. The young pickpocket, Dawkins, otherwise known as the "Artful Dodger," is shown as an individual too small for his age, "au nez camus," with "sourcils sans relief." Dickens knew well the law of heredity. He wrote that the mother of the murderer, Hugh, had ended her career at the galleys and that her children were, from the cradle, destined to be criminals and assassins. He admirably defined the economic factor of crime, writing of poverty and misery in all their horrible aspects and picturing them in a way heretofore unknown. In closing, Kulishev says, that to Dickens the misguided and unfortunate children, filling the sordid streets, were but irresponsible victims of the criminal atmosphere surrounding them.

SOME FALLACIES IN MEDICAL EDUCATION.

IN the issue of the Cincinnati *Lancet-Clinic* for May 31 (Vol. clx, p.581), is printed an address delivered by Dr. Paul G. Woolley before the Alumni Association of the Ohio Medical College, on "Medical Education." At this commencement season, when this subject is naturally under review, there is peculiar pertinence in such a comment as Dr. Woolley's on the aims, methods and material of medical training in America.

"The average standard of American medicine is low. There are several causes for this. The first cause is the absence of a demand from the public for a high average standard. Another is the fallacy of the poor boy. It is said that the weaker medical schools are necessary to prepare the weaker students for the country places. That fallacy is being worked to the limit, and it has been played upon for many years, so that there has been and will be, danger in many states for some time to come of preparing *poor boys* for the country, when, as Pritchett says, 'Of all men who deal with human illness, the country physician needs to be best trained. He is far away from the specialist, he is without the facilities of hospitals, and hence he must deal alone with situations in which, in the city, he would have the coöperation of two or three men trained in different fields. It is, therefore, particularly essential that the country physician should have a broad and thorough training.' Robert Koch was a country doctor!"

The second fallacy in medical education Dr. Woolley considers that of the danger of numerical underproduction. He believes the much greater danger to be overproduction.

"In an address, President Jordan said, 'the function of the privately endowed university is to set standards in education and to uphold these standards. It must set standards in service to society as well as within its own class rooms. No institution can be better than its best. If it falls short of that it has no reason for being.' The 'profession of medicine is overcrowded, not so much because its members are numerous as because they are undertrained.'

"The duty of a medical faculty is not, primarily, to train men to make a living from the practice of medicine, but to make them agents of social improvement."

MEDICAL NOTES.

HONORARY DEGREES AT COLUMBIA.—At the annual commencement exercises of Columbia University recently the honorary doctorate in science was conferred on Colonel William C. Gorgas, Assistant Surgeon-General, U. S. A., and on Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research.

A CENTENARIAN.—Mrs. Elizabeth Mangherman, who died on June 13 at Bryan, Ohio, is said to have been born on June 1, 1805, in Pennsylvania. She is survived by four of her seventeen children and by many descendants, to the fifth generation. She is said to have been an inveterate smoker.

A SOCIETY OF CENTENARIANS.—Report from Tokio, Japan, states that a Society of Centenarians has recently been organized in that city. To it are eligible all centenarians and all persons over 80 who desire to live to be 100. At its initial meeting there was enrolled a membership of 500, of whom the oldest was a woman alleged to be 113.

PHILIPPINE ISLANDS HEALTH REPORT.—The recently published annual report of the Bureau of Health for the Philippine Islands records the activities of that body for the fiscal year ended June 30, 1912. During this period, though the islands have been seriously threatened with invasions of cholera, plague, and smallpox, and the outbreak of endemic diseases, yet their health has been better than at any time since the American occupation. The report recommends the construction of additional provincial hospitals in the Cagayan valley and the east coast of Luzon; an adequate appropriation to continue the construction work at the Culion leper colony; and a tax on polished rice in order to discourage its consumption and thereby prevent probably 5000 deaths from beriberi annually.

NEWARK HOUSING REPORT.—A recently published housing report to the city plan commission of Newark, N. J., presents a valuable study of housing conditions, problems, laws, and the methods of municipal control and private cooperation by which some of the evils of improper housing may be combatted or minimized.

BOSTON AND NEW ENGLAND.

NEWTON HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Newton (Mass.) Hospital Training School were held in that city last week. The principal address was delivered by Dr. F. B. Lund, of Boston, on "The Duties and Privileges of the Nursing Profession." Graduation badges were presented by Miss Riddle to a class of 17 pupil candidates to whom diplomas had been awarded.

EYE INJURIES FROM EXPLODING GOLF-BALLS.—The recently issued monthly bulletin of the Massachusetts State Board of Health for April, 1913, contains an item relative to exploding golf-balls as a cause of accidental injuries to eyesight.

"Two cases of injury to eyesight have come to the notice of the State Board of Health recently through the explosion of certain varieties of golf balls. It seems that in the manufacture of these balls a small rubber bag about 1 inch in diameter is filled with solutions of differing type. The bag is then wound with rubber thread until it has become nearly as large as is desired in the finished product. It is then placed in the gutta-percha cover. The rubber windings cause great pressure upon the bag, and if this pressure is relieved at one point by cutting, the bag bursts and in the bursting the contained solution is scattered into the face of the person holding it."

In view of these accidents, the chief analyst of the Board examined a number of golf-balls, and found several with liquid centres, the fluid being respectively water, zinc chloride solution, soft soap and talc, and soft soap and red lead.

THE NANTUCKET HOSPITAL.—The following letter of appeal, reprinted in part from a recent issue of the daily press, presents emphatically the urgent needs of a new and deserving medical charity.

"For nearly 250 years the island community of Nantucket has been an exemplar of human brotherhood in the best definition of that term. Every year the sea takes its toll on these coasts, and the dead and dying are cared for by the community. But there has been no house of refuge. Only two years ago last March the bodies of men, frozen and freezing, were brought over from Great Point, distant fifteen miles by land and nine by water, to the town, and there was no hospital to receive them.

"Within the last six months we have been enabled, through generous help and united effort, to buy a cottage which shall serve this purpose. In order to begin and maintain this work on an island in the Atlantic, thirty miles distant from the mainland, there is urgent need for an

endowment fund of one hundred thousand dollars. Many of the three thousand permanent population are fishermen, and the little community, as a whole, is not able to bear the extra burden of hospital maintenance.

"I have faith to believe that the thousands of Nantucket's descendants, who have an ancestral interest in this island outpost of our United States, will be glad to give to this endowment fund, if only they know of the need for it.

"I have faith to believe that so soon as this urgent need shall be generally known the thousands of strangers who come to this island for the summer months will give, in glad recognition of rest accorded them here, of relief from physical pain obtained here, to this fund which is to maintain a cottage hospital in a sea-enclosed community.

"It may be, also, that the tens of thousands who pass annually the South Shoals' Lightship, of Nantucket, on their passage to and from Europe, may give, in appreciation of what that first and last signal means to them—home and native land—a thought to the little island just beyond the shoals, and with the thought—a gift.

"It is in this faith that, through the courtesy of the press, I make the appeal for our island hospital.

"All contributions may be sent to the treasurer of the Nantucket Cottage Hospital Corporation, or to me, and will receive personal acknowledgment.

"MARY E. WALLER,
Trustee of the Nantucket Hospital Cottage Corporation, Nantucket Island, Mass."

FAULKNER HOSPITAL NURSES' HOME.—On Thursday of last week, June 12, were celebrated with appropriate ceremonies the opening of the new Nurses' Home at the Faulkner Hospital, Jamaica Plain, and the graduation exercises of the training school. Addresses were made by Dr. George W. Gay, Professor W. T. Sedgwick, Dr. Henry Jackson, and Miss Sara E. Parsons.

"The new building, which is a three-story structure of brick, stands about a hundred feet to the west of the hospital group proper, with which it is connected by a concrete covered way.

"The two special features of the building are the large living-room in the middle of the south front and the very large, screened sleeping-porch above the living-room. The latter opens by a broad doorway from the corridor which runs the length of the building, through the middle. Of ample size, about thirty-three by seventeen feet, it has a roomy fireplace at each end. A large part of the south side is window space, so that in clear weather the room is flooded with sunshine.

"Aside from the living-room and the classroom, which is across the corridor from the living-room the whole of the three floors are devoted to sleeping quarters, though exception should be made of a small reception room for the nurses on the right hand of the first floor entrance. The individual bedrooms, while necessarily small, are airy and exceptionally well lighted. The great sleeping porch on the second floor will accommodate at least six beds, and is so well sheltered that it can be used comfortably, even in stormy weather.

"The comfort of the night nurses has been considered by giving them a tier of rooms at the west end of the building, farthest from the sources of noise; these night quarters are shut off as a group from the rest of the building and have their own bath and toilet rooms. The building is steam-heated from the plant in the administration building, the pipes being carried through the covered way connecting the two buildings.

"Considerable enlargement of the actual accommodations of the hospital proper results from the building of the nurses' home. Five rooms on the second floor of the main building hitherto occupied by the nurses now become available for patients, and one of these will be made into a two-bed ward. In addition, the laundry, which occupied part of the third story of the main building, has been transferred to the basement of the new building, and here will be done all the hand laundry work of the institution. Even this transfer leaves a considerable amount of space in the new basement not fully utilized at present, though sufficient room has been taken for a model instruction kitchen for the nurses, and for two small rooms where they can do washing and ironing for themselves.

"By this release of room in the main building, the normal accommodation for patients is increased from about thirty beds to thirty-eight, and it is the wish of all those interested in the hospital that the measure and quality of its resources for caring for the sick should be made so much better known than now that the added space may be put into active service."

NEW YORK.

VITAL STATISTICS.—The death-rate in the city remains practically the same as last year, in which all records were broken. In the month of May the rate was 14.49, as against 15.09 in April and 14.29 in May, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from typhoid fever declined from 3.25 in April to 2.5 in May; the weekly average from scarlet fever, from 18.5 to 15.75; from diphtheria and croup, from 41 to 32.25; from influenza, from 11 to 4.75; from epidemic cerebrospinal meningitis, from 6 to 3.5; from pulmonary tuberculosis, from 201.75 to 188.5; from pneumonia, from 115 to 107; from broncho-pneumonia, from 124 to 109; from diarrheal diseases under five years, from 42.5 to 38.75; from tuber-

culous meningitis, from 20.75 to 18.5; from cancer, from 85.5 to 81.75; from apoplexy and softening of the brain, from 20.25 to 19.75; from organic heart diseases, from 203.25 to 191.75; from cirrhosis of the liver, from 24 to 20.75; and from Bright's disease and acute nephritis, from 119.25 to 109.25. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from measles increased from 22 to 27.5; from whooping cough, from 8 to 9.25; from acute bronchitis, from 14.75 to 18; and from appendicitis and typhilitis from 11.75 to 15.5.

COMMENCEMENT AT CORNELL MEDICAL COLLEGE.—The fourteenth annual commencement of Cornell University Medical College was held on June 12, when a class of 19 was graduated.

OPENING OF SEASIDE HOSPITAL.—The reconstructed main building of the Seaside Hospital of St. John's Guild was formally opened on June 12, when addresses were made by Dr. A. Jacobi, Dr. J. H. Finley, president of the College of the City of New York, and others. The improvements, including a new wing, have been made at a cost of $150,000, and 400 patients can now be accommodated. It is purposed in future to keep the hospital open all the year round, and in the course of his remarks, Mr. Duff G. Maynard, one of the officials of the Guild, said: "If the different hospitals will send their mothers and babies to us, we can take care of them and build them up, and make the mothers ready to go back to their life in the tenements with a knowledge of how to care for their babies."

AMERICAN SOCIETY FOR CONTROL OF CANCER.—The executive committee of the organization recently formed to combat the increase of cancer in this country met on June 9 and fixed upon "The American Society for the Control of Cancer" as the official title of the body. A committee was appointed to go to Minneapolis and secure the coöperation of the American Medical Association in the society's campaign against cancer.

INFANT PULMOTOR.—A case of successful use of the infant pulmotor in asphyxia neonatorum is reported at the Lebanon Hospital, where one of the machines had been received only a few days before. The first Drager pulmotor brought to this country was imported by Dr. J. Clifton Edgar, professor of obstetrics in Cornell Medical College more than a year ago, and since then he has employed the apparatus successfully some six or seven times at the Manhattan Maternity and elsewhere. The use of the pulmotor appears to be much superior to the ordinary methods of resuscitation.

HONORARY DEGREES AT PRINCETON.—At the commencement of Princeton University, on June 10, the degree of Doctor of Science was conferred upon Dr. Simon Flexner, director of the Rockefeller Institute, and Professor David Linn Edsall of the Harvard Medical School.

OPHTHALMIA NEONATORUM.—At a recent meeting of the city Board of Health the rules and regulations governing the practice of midwifery were amended by the insertion of the following: "When a child delivered has or develops sore eyes, or any redness, inflammation or discharge from the eyes, the midwife in attendance must at once report to the Department of Health the name and address of the mother, and state the time when such condition of the eyes was first noticed." It was in 1904 that the department made its first attempt to control ophthalmia neonatorum by making the affection reportable by institutions, physicians and midwives. At the same time the midwives were notified of the serious nature of the disease and advised to employ Credé's method of prophylaxis. In 1908 the more rigid supervision of the registration of midwives and their more rigid control on the part of the department added still further to the efficiency of the latter's efforts. At present when a case of ophthalmia neonatorum is reported by a midwife, it is visited as soon as possible by an oculist from the department, who takes a smear and records his opinion as to the clinical diagnosis. Should the examination of the smear show the presence of the gonococcus, the case is again visited by a department nurse, who sees that it is placed under proper treatment. Up to the present time this plan has worked well but, in order to avoid the possibility of error in diagnosis arising on account of the very mild nature of some of these cases at their onset, the department has deemed it advisable to enact the new regulation given above.

SEROLOGIC LABORATORY.—During the year 1912 the serologic laboratory of the health department tested 4,585 specimens of blood for syphilis and 545 for gonorrhea, and from Jan. 1, 1913, to June 1, 1913, 5,639 blood specimens

were tested for syphilis, and 846 for gonorrhea. The department has now established two diagnostic clinics for venereal diseases, where patients may be sent for the performance of the Wassermann reaction and for examinations of fresh specimens for the presence of treponema. No patients are received, however, unless referred by physicians, and under no circumstances are the results of examinations reported to patients.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—At the annual meeting of the American Medico-Psychological Association, held at Niagara Falls June 11-13, Dr. Carlos F. MacDonald of New York was elected president, Dr. S. E. Smith of Indiana, vice-president, and Dr. Charles G. Wagner of Binghamton, N. Y., secretary. The next annual meeting is to be held in Baltimore.

Current Literature.

MEDICAL RECORD.

JUNE 7, 1913.

1. BRANNAN, J. W. *The Prophylactic and Therapeutictic Value of Fresh Air in Schools and Hospitals, Including Heliotherapy.*
2. STEIN, J. B. *The Rob.*
3. AULDE, J. *The Acid Test in Therapeutics.*
4. *MAUNHEIMER, G. *A Preliminary Report of Personal Experiences with the Friedmann Treatment.*
5. CADWALADER, W. B., AND CORSON-WHITE, E. P. *The Relation of Syphilis to Progressive Muscular Dystrophy.*
6. HIRSHBERG, L. K. *A New Contagious Gangrene in White Rats.*

4. Maunheimer reports eighteen cases injected under his supervision by Dr. Friedmann. Thirteen of the cases had pulmonary tuberculosis, two were genito-urinary, and three had joint tuberculosis. All were injected intramuscularly, and three were injected intravenously as well. In the two months following injection the writer has seen definite improvement attributable to the vaccine in none of the cases. One case developed a large abscess at the site of injection, but this was the only instance in which harm came certainly from the treatment. Several patients were worse after treatment but the vaccine may not have been responsible. The writer believes that the underlying idea of this treatment is sound, but that results do not justify Dr. Friedmann's claims. He concludes regretfully that Dr. Friedmann is superficial in interpreting results and commercial in his methods. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 7, 1913.

1. BEILL, A. A. *The Unconscious Factors in the Neuroses.*
2. BABCOCK, W. W. *Gall-stones Producing Pyloric and Jejunal Obstruction.*
3. GOTTHEIL, W. S. *Changes in the Treatment of Syphilis.*
4. KAPLAN, D. M. *A Quantitative Chemical Reaction for the Control of Positive Wassermann Results.*
5. STROBELL, C. W. *The Problem in Local Recurrent Breast Cancer.*
6. MYERS, F. M. *Some Unusual Obsterical Complications.*
7. *WARD, G. G., JR. *The Treatment of Endometritis.*
8. BROWN, H. A. *Measles: Periodic Cycles of Virulence.*
9. KAHN, A. *Notes on the Deleterious Effects of Salvarsan from an Otological Standpoint.*
10. WILLIAMS, P. F. *The Use of the Metranoikter in the Treatment of Dysmenorrhea and Sterility.*

7. Ward writes a valuable paper on endometritis. This condition may be divided into two great classes, cases of bacterial origin and those of non-bacterial origin. In the acute infective cases the discharge is pus, containing active organisms. In these cases the best treatment is to let the patient alone. In chronic hyperplastic endometritis there is no infection and the discharge is an excessive secretion from the cervical and utricular glands, the result of venous congestion. The most important principle in treating these cases is to determine the cause of the venous stasis and to treat it. The curette is the most valuable means of removing the greatly thickened and diseased endometrium, but the cause must be corrected too, or relief will be only temporary. [L. D. C.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

MAY, 1913.

1. *JANEWAY, T. C. *Nephritic Hypertension: Clinical and Experimental Studies.*
2. *HEWLETT, A. A. *The Circulation in the Arm of Man.*
3. LEWIS, T., AND ALLEN, H. W. *An Instance of Premature Beats Arising in the Auriculoventricular Bundle of a Young Child.*
4. DAWES, S. L. *The Problem of the Alien Insane.*
5. LYLE, H. H. M. *Combined Tuberculosis and Carcinoma of the Stomach, with a Report of a Case upon Which a Partial Gastrectomy Was Performed.*
6. ALBERT, H. *The Control of Rabies.*
7. *MYERS, V. C., AND FINE, M. S. *Metabolism in Pellagra.*
8. MITCHELL, O. W. H. *Acute Suppurative Lymphadenitis, Abdominal, Due to a Diplostreptococcus; Autopsy.*
9. *HAYHURST, E. R. *Occupational Brass Poisoning.*

1. Janeway's article is an exhaustive discussion of the various possible causes of hypertension. Theoretically hypertension may be due to a quantitative reduction of kidney substance, to intoxication affecting the central nervous system, or to an irritability of the vasoconstricting mechanism leading to sclerosis of arterioles. Original experimental evidence is reported to show the possibility of the first of these methods, which may well be the cause of the hypertension in the contracted kidney. That hypertension may result from toxic influences is certain in lead poisoning, and probable in nephritis, particularly the acute; that epinephrin plays a part in its production is not supported by evidence. The development of hypertension through a general sclerosis of the small vessels causing increased peripheral resistance is possible.

2. Hewlett discusses the influences which modify the circulation of the arm in man with special refer-

ence to factors other than the force of the heart. The most efficient means of increasing the circulation of the part he found to be general and local warmth, in comparison to which the action of drugs was insignificant.

7. Myers and Fine continue the report of their studies of pellagra. Metabolism experiments in fifteen cases failed to show deficiency in power of utilization of the various foodstuffs. The chief positive finding was the presence of anacidity in the gastric contents in eight of fourteen cases, and in most of these a great diminution or complete absence of pepsin.

9. Hayhurst calls to attention the occurrence in workers in brass foundries of a malaria-like syndrome of chill, fever and sweat appearing a few hours after the inhalation of fumes from molten brass or zinc. These attacks are without immediate serious effects, and a temporary immunity is developed, but from the high morbidity and mortality of persons so exposed it is probable that there results a condition of nonresistance to other disease. The importance of ventilation and of other industrial hygienic methods is urged. [F. W. P.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JUNE, 1913.

1. *WHIPPLE, G. H., AND HOOPER, C. W. *Hematogenous and Obstructive Icterus. Experimental Studies by Means of the Eck Fistula.*
2. *WHIPPLE, G. H., AND HOOPER, C. W. *Icterus. A Rapid Change of Hemoglobin to Bile Pigment in the Circulation Outside the Liver.*
3. TATUM, A. L. *Morphological Studies in Experimental Cretinism.*
4. KLIGLER, I. J. *A Note on the Behavior of the Saphrophytic Cocci with Regard to Gram's Stain.*
5. WINTERNITZ, M. C., AND HIRSCHFELDER, A. D. *Studies upon Experimental Pneumonia in Rabbits.*
6. HIRSCHFELDER, A. D., AND WINTERNITZ, M. C. *Studies upon Experimental Pneumonia in Rabbits. IV. Is There a Parallelism Between the Trypanocidal and Pneumococcicidal Action of Drugs?*
7. LELENE, P. A. *On the Components of Sphingomyelin.*

1 and 2. Whipple and Hooper studied hematogenous and obstructive icterus in animals with an Eck fistula. Their work suggests that bile pigment may be formed under certain conditions from other substances than hemoglobin, and also that bile pigment formation may depend upon the functional activity of the liver cells rather than upon the amount of the hemoglobin supplied to it. They were also able to demonstrate that in dogs hemoglobin can be rapidly changed in the circulating blood into bile without participation of the liver. [R. I. L.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

MAY, 1913.

1. *MARINE, D. *The Evolution of the Thyroid Gland.*
2. *AUSTRIAN, C. R. *Hypersensitiveness to Tuberculo-Protein and to Tuberculin.*
3. MACHT, D. I. *The Ancient Office of Coroner.*
4. SCHACHMER, A. *Dr. Ephraim McDowell, "Father of Ovariotomy"; His Life and His Work.*

1. This is a somewhat complex and detailed biological study of value to those interested in this subject.

2. Austrian seems to have conclusively settled the much discussed question as to whether the tuberculin reaction was or was not an anaphylactic phenomenon. The results of his experiments on animals and humans justifies the interpretation of this reaction as a true manifestation of hypersensitiveness. This article is of great interest and value to workers along this line. [J. B. H.]

JUNE, 1913.

1. *OSLER, W. *Specialism in the General Hospital.*
2. *KNOOP, F. *Some Modern Problems in Nutrition.*
3. *MAJOR, R. H. *The Wassermann Reaction in The Johns Hopkins Hospital.*
4. DAVIS, J. S. *Excessive Thickening of Thiersch Grafts Caused by a Component of Scarlet Red (Amiloazotoluol).*
5. *GELIEN, J., AND HAMMAN, L. *The Subsequent History of One Thousand Patients Who Received Tuberculin Tests.*
6. *WHITE, W. C., GAMMON, A. M., AND HOLLANDER, L. *The Influence of the Contents of the Pulmonary Artery on Experimental Pulmonary Tuberculosis.*
7. *HAWES, J. B., 2D. *The Physician's Opportunity in Preventive Medicine.*

1. This paper, the title of which hardly does justice to the charm of the subject matter, does not admit of review but is well worth reading.

2. To those interested in physiological chemistry and the problems of digestion and metabolism, this article of Knoop's will be of interest. It is too complex for the general practitioner as a rule.

3. Major describes the technic employed in doing the Wassermann reaction at the Johns Hopkins Hospital and gives the results obtained in aortic disease, aneurysm, tabes and paresis, brain tumor, diabetes mellitus, pellagra and jaundice. He finds that no mistake in diagnosis has been made based on the result of this reaction in 239 cases showing a positive reaction.

5. Gellen and Hamman describe the subsequent history of 1,000 patients who received tuberculin tests. The results are of great interest and value. Their attitude toward the early diagnosis of tuberculosis has been a very conservative one, and in this investigation they have included in the "tuberculous group" only those frankly so. Out of 110 cases originally classified as non-tuberculous only four have come so. They call attention to the classical error of calling a chronic pulmonary tuberculosis in the aged a chronic bronchitis. They emphasize the fact that it is careful observation of symptoms and the use of common sense which is important in the diagnosis of tuberculosis, rather than any special skill in eliciting "signs." His figures also show the futility(?) of treating poor patients who are beyond the incipient stage. The tables and other material in this paper do not admit of review but are well worthy of careful study.

6. The writers conclude from their experiments that there is a close relation between the fats and split fat substances in the pulmonary stream and the severity of experimental pulmonary tuberculous lesions.

7. Hawes gives a review of the various positions, paid and unpaid, open to physicians in state or municipal departments dealing with various health problems. [J. B. H.]

JOURNAL OF MEDICAL RESEARCH.

MAY, 1913.

1. EWING. *Endothelioma of Lymph Nodes.*
2. ORDWAY, KELLERT AND HUBSTED. *A Typhoid-like Disease in Rabbits Caused by Bacillus Suipesticus, with Particular Reference to the Clinical Course and Prophylactic Vaccination.*
3. FABYAN. *The Persistence of B. Abortus, Bang, in the Tissues of Inoculated Animals.*
4. FABYAN. *A Note on the Presence of B. Abortus in Cow's Milk.*

5. *Smith. *Notes on the Biology of the Tubercle Bacillus.*
6. *Avery and Lyall. *Concerning Secondary Infection in Pulmonary Tuberculosis.*
7. Ottenburg, Kaliski and Friedman. *Experimental Agglutinatin and Hemolytic Transfusions.*
8. Duval and Harris. *Further Studies upon the Leprosy Bacillus. I. Its Cultivation and Differentiation from Other Acid-fast Species.*
9. *Adler. *The Experimental Production of Pernicious Anemia in Rabbits.*
10. Christian and O'Hare. *Study XIX, Glomerular Lesions in Acute Experimental (Uranium) Nephritis in the Rabbit.*

5. The tubercle bacillus, human as well as bovine, retains its power to multiply when kept at 40-50° F. for many months. The number of surviving bacilli is reduced, however, so that in many cases multiplication does not take place so well in artificial media as in the guinea-pig. The bovine form is more resistant. This may be due to greater inherent resistance on the part of the bovine form, or the excessive acid production of the human variety in 5% glycerine bouillon.

6. The authors consider secondary infection in pulmonary tuberculosis of no great importance. The organisms, isolated by them, do not differ from those similarly isolated from non-tuberculous cases. In no cases did blood culture show the presence of secondary infection.

9. Adler has been able to produce in rabbits a severe anemia, claimed by him to resemble pernicious anemia, by the administration of oils—cotton seed or olive. This is due to the direct destruction of red cells, by hemolysis. Quinine exerts a protective influence in preventing this toxic action. [L. H. S.]

The Lancet.

April 26, 1913.

1. *Trotter, W. *Hunterian Lectures on the Principles and Technic of the Operative Treatment of Malignant Disease of the Mouth and Pharynx. Lecture II.*
2. Ledingham, J. C. G. *Bacteriological Evidence in Support of Intestinal Intoxication.*
3. Broughton-Alcock, W. *Vaccination for Various Infections with Living Micro-organisms.*
4. Hurtley, W. H. *The Tests for Acetoacetic Acid, Including a Simple New Test.*
5. Brown, W. *Freud's Theory of Dreams. III.*

1. In the second Hunterian Lecture, Trotter discusses post-operative risks, such as lung complications, wound infections and the methods of preventing them by immunization (doubtful) by pulmonary disinfection and by complete protection of the wound from all infective material. He then takes up and discusses in detail the technic of the various operations for the removal of new growths of this region. [J. B. H.]

May 3, 1913.

1. *Fairbank, H. A. T. *A Lecture on Birth Palsy; Subluxation of the Shoulder-joint in Infants and Young Children.*
2. Saundby, R. *A Case of Ankylostomiasis in Birmingham.*
3. *Engelmann, W. *Radium Emanation Therapy.*
4. Dally, J. F. H. *The Use of Tuberculin in Diagnosis and Treatment.*
5. *Mantle, A. *The Treatment of Confirmed Cases of High Blood Pressure; the Undesirability of Actively Applying Therapeutic Means to Reduce It.*
6. Coles, A. C. *Protozoal-like Structures in the Blood in a Case of Black-water Fever.*
7. Campbell, H. *Man's Mental Evolution, Past and Future.*

1. In a paper with numerous illustrations Fairbank discusses the nature of the lesions, physical signs and treatment of birth palsy, and then in more detail describes those cases in which there is an associated subluxation of the shoulder-joint. He describes how this is brought about in a typical case and the operative treatment.

3. Engelmann in a general article describes the uses and action of radium emanations, the forms of application, such as by baths, drinking and inhalations and the various diseases and conditions benefited by such emanations.

5. Mantle in a short article emphasizes the dangers of trying to reduce a high blood pressure in every case by nitrates and other vaso dilators, and urges the elimination from the system by purgation and a strict régime of life of those bodies which act as vaso constrictors. [J. B. H.]

May 24, 1913.

1. Waller, A. D. *The Oliver-Sharpey Lectures on the Electrical Action of the Human Heart.*
2. White, W. H. *Alimentary Toxemia, a Summary and Reply.*
3. Phillips, S. *Growths in the Gall-bladder and Growths in the Bile-ducts.*
4. *Bayley, H. W. *The Dangers and Complications of Salvarsan Treatment.*
5. Jones, D. W. C., and Worrell, E. S. *A Case of Phthisis with Complete Cantation of the Left Lung.*
6. Donald, R., and Filmer, P. *A Method of Counting Bacteria in Water.*
7. Bevan, E. C. *A Case of Hypoglossal Anastomosis.*
8. Campbell, H. *Man's Mental Evolution, Past and Future.*

4. Bayley believes that with due care in preparing the patient and no errors in preparation of the drug, technic of administration, intervals between treatments, the fear of death cannot be justifiably advanced as a reason for withholding salvarsan treatment and that the slight risk of serious complications or sequelae is more than counterbalanced by the therapeutic results obtained. He is firm in the opinion that all cases of early parasyphilis should be given salvarsan as a matter of routine. [J. B. H.]

British Medical Journal.

May 3, 1913

1. *Shaw, H. B. *An Address on the Present Evidence For and Against the Use of Tuberculin as a Specific Cure.*
2. *Thomson, H. H. *Plea for Uniform Method of Treatment with Tuberculin.*
3. Holroyd, J. B. H. *Prognosis in Pulmonary Tuberculosis; the Results Obtained by Arneth's Method.*
4. Horsford, C. *The Epiglottic Suture: Its Value in Indirect Laryngoscopy.*
5. *Handley, W. S., and Ball, C. P. *Cheilotomy: a Function-restoring Operation in Crippling Traumatic Arthritis of the Hip-joint.*
6. Anderson, J. *A Case of Enterolithe.*
7. Clarke, J. M., and Morton, C. A. *Removal of Intratracheal Tumors from Lumbar Region of Spinal Cord.*
8. v. Bonin, G. *Classification of Tumors of the Pituitary Body.*

1. Shaw, after describing Koch's original work on tuberculin discusses the evidence going to show that tuberculin can cure tuberculosis and is forced to come to the conclusion that as yet there is very little evidence that tuberculin is a specific cure for tubercu-

losis, whether large or small doses are used. He calls attention to the excellent results obtained in genito-urinary tuberculosis with tuberculin, but is rather skeptical as to how much of the improvement is due solely to the use of this agent. He reviews the comparative figures in series of cases treated with and without tuberculin and finds little in favor of the former. He then discusses the nature of the action of tuberculin and compares this with anti-typhoid inoculation. This paper, though dealing with a complex subject, is of distinct value.

2. Thomson urges the adoption of a uniform scheme for treating patients with tuberculin both at home, in dispensaries and in sanatoria, so that the patient in going from one to the other may have his treatment continued without interruption or the introduction of new methods. He gives the details of the scheme he considers best for this purpose.

4. Handley and Ball describe an operation for traumatic arthritis of the hip joint with which they have had marked success in two cases. There are several excellent plates. [J. B. H.]

Obituary.

L. FORBES WINSLOW, M.D.

Dr. L. Forbes Winslow, who died on June 8 at London, was born in that city in 1844, the son of a physician. He was noted as an expert in lunacy, and was concerned as an alienist in several celebrated criminal cases in Great Britain and the United States. He was physician to the West End Hospital, London, the North London Hospital for Consumptives, founder of the British Hospital for Mental Disorders, lecturer on insanity at the Charing Cross Hospital and other London hospitals, and vice-president of the Medico-Legal Congress of New York and chairman of its psychological department. Among the works of which he was author may be mentioned his "Manual of Lunacy," "Mad Humanity," "Eccentricity of Youth Leading to Crime," "The Suggestive Power of Hypnotism," and "The Insanity of Passion and Crime." His codified "Lunacy Law in England" was translated into French. He was a voluminous contributor to medical periodicals.

Miscellany.

FOUR HUMAN EMBRYOS.

The Anatomical Department of the Harvard Medical School is forming a collection of human embryos, which was begun in 1896 and is intended for purposes of research. Accordingly, the effort has been especially to obtain satisfactory specimens of the first two or three months, sufficiently well preserved to be cut up into serial sections. The number of series thus far prepared is 67. To these series of microscopical sections four valuable human embryos have recently been added. They bear the catalogue numbers 1913, 1917, 1918, and 1919. The largest (1917) of these four measured 40 mm., and was presented by Dr. E. E. Everett. It was received on Dec. 27, 1911, from a case of hysterectomy, two hours after the operation, and was preserved in Carnoy's fluid. Except for a marked edema of the skin in the region of the occiput and neck, the specimen was found to be normal and in a fine state of preservation. The second specimen (which measured 18.2 mm.) also came from a case of hysterectomy, performed by Dr. Edward Reynolds in May, 1912. Through Dr. Reynolds' kindness, this very valuable embryo was sent at once to the Medical School, and was very carefully preserved, and has since been drawn and sectioned, yielding a very fine series, 1913. The third specimen was sent to Professor Minot in the summer of 1912. The chorionic vesicle was intact, and had been placed with the contained embryo in alcohol. There were no data as to the age of the specimen, which measured 10.0 mm. The preservation of the external form was excellent. The embryo seemed perfectly normal. An examination of the sections of the series 1919 shows a not very satisfactory histological preservation. The fourth specimen was received through Dr. Howard T. Swain in April, 1913. The ovum had been discharged, and six hours after it was obtained had been placed in 10% formalin. Afterwards the chorionic sac was opened, and the specimen further treated. Although treated with the greatest care after it was received at the laboratory, the specimen exhibits a very considerable histological deterioration, so that although it shows satisfactorily the anatomical structure, it cannot be used for any exact histological observations.

To the gentlemen who have thus contributed very valuable and welcome material to the Harvard Collection our thanks are due, and we wish to make herewith public acknowledgment of their kindness. Such gifts are of great value to all the workers in the laboratory, and our collection has now become so extensive and so well known, that it attracts embryological investigators from other universities. Our human embryos have already served as the foundation for a considerable number of important researches. In order, however, that it may have its fullest usefulness, it is very desirable that the number of good specimens, especially of the first three months of gestation, be considerably increased, and I therefore request all readers of the Journal who may secure hereafter young human embryos to send them to the Harvard Anatomical Laboratory in Boston, where they will be not only highly prized, but carefully preserved and made of the greatest possible value for scientific research.

The brief account of the four embryos recently cut up may serve to emphasize the great importance from the scientific point of view of very prompt and suitable preservation. The

first and second specimens were preserved quite promptly and by one of the very best methods known to us. The other two specimens were preserved less promptly and by less good methods. The comparison of the quality of the specimens shows conspicuously the results of the different treatments.

For the convenience of those who may be willing to assist our embryological work, the following hints as to preservation are given:—

There are two general rules for all kinds of preservation: *first*, that the embryo should be handled as little as possible; *second*, that after lying a few minutes in the preserving fluid, it should be transferred to a fresh portion of the fluid, which must be pure and clean in order that it can act properly as a preservative. Only two methods of preservation need to be mentioned. The first, and simpler, is to place the specimen in a mixture made by adding one part of commercial formalin to nine parts of water. If the fluid is renewed at once, as before suggested, the specimen may remain permanently in it. The second, and better method, is to use Carnoy's fluid. This is one of the quickest and most penetrating fixatives hitherto known. It preserves all tissues in excellent condition, and is suitable for almost any subsequent stain which may be desired. Carnoy's fluid is prepared by mixing one part of glacial acetic acid with six parts of absolute alcohol, and three parts of chloroform. It may be made up in quantity and kept in stock. The specimen, according to its size, may remain in this mixture for from one to two, or even three, hours. It *must* then be transferred to absolute alcohol, in which it is then kept permanently.

It is probable that many specimens which would be of the greatest value in the Harvard Collection are not preserved. It is only through the kind coöperation of practitioners that the student of human embryology is able to obtain the necessary material for his researches, and it is hoped that this appeal may not remain without results.

It is planned to present later a report upon the scientific researches carried out in connection with the Harvard Embryological Collection, in order to make known to the readers of the JOURNAL the considerable extent and real importance of the researches that have been completed by utilizing the human embryos in our collection.

CHARLES S. MINOT.

PRACTICAL ASPECTS OF EUGENICS.

THE following recent letter by Dr. George W. Gay, of Boston to the daily press seems to deserve reprinting on account of the clearness with which it states for popular understanding, some of the practical problems and purposes of positive eugenics.

"Eugenics, the improvement of the race through judicious mating, is engaging the attention of thoughtful people everywhere. The quality of human being born in civilized communities is finally receiving some consideration akin to that which for a long time has been intelligently given to the lower animals with such satisfactory results. Hitherto most of our attention has been devoted to results rather than to causes and prevention. That it is high time, however, for the taxpayers of Massachusetts to pay especial attention to the causes and prevention of certain defects in her people is shown by the fact that it costs them about $7,000,000 annually to care for her defective, delinquent and criminal classes. These include the insane, feeble-minded, epileptic, inebriate, paupers and criminals. Thousands of these unfortunate people become public charges. Many are of no use or comfort to themselves or to anyone; they but add to the burdens of an overtaxed commonwealth.

"Among the chief causes of this deplorable state of affairs are alcohol, the social diseases and heredity. 'The abuse of alcohol, directly and indirectly, does more to fill our prisons, insane hospitals, institutions for the feeble-minded and almshouses than all other causes combined.' Such was the opinion of the able commission appointed by the Legislature in 1910 to consider and report upon this subject. Upon the best of authority it can be stated that a large proportion of chronic alcoholics are also the victims of one or both of the social diseases. Only the medical profession can realize their pernicious effects in the community.

"That much mental and physical suffering is due to our double standard of morality cannot be doubted for a moment. The woman is expected to enter matrimony virtuous and free from any contagious disease, but the man is under no such restrictions. Very likely he has lived under the false impression that continence is incompatible with health. He may also consider himself free from a former infection, while in fact it may still be in a dormant state ready to become active at any time. Many wives are thus infected and become sterile; many become invalids and not a few lose their lives. Furthermore, the transgressions of the fathers may be visited upon their offspring indefinitely. Verily, 'The gods are just and of our pleasant vices make instruments to scourge us!'

"As the result of prolonged observation and study, it is the unanimous opinion of the best authorities that the defects and delinquencies of the above mentioned classes are to a marked degree inherited. To a certain extent, therefore, they are preventable. If the child has any natural rights, the first and principal one is that of being well born. Handicapped with a congenital or inherited defect, he cannot have a fair chance in life. It can but be a hindrance, if not a curse, to his whole existence. So far as possible it is the duty of parents, as well as of the public through proper regulations, to give each child

a fair chance in the struggle, that he may become a useful, self-supporting citizen.

"The question naturally arises as to what, if anything, can be done to correct to an appreciable extent this deplorable condition. Thus far little has been accomplished through marriage laws, or legislation of any sort. It is more than doubtful if much reform need be expected at present along these lines. Procreation is independent of marriage and of state lines. National legislation on these matters is not in sight. A physician's certificate as to the health of the parties contemplating matrimony has a limited field of usefulness. For obvious reasons its general adoption would fail to accomplish the desired result. For instance, it would be a bold physician who would certify to the existence of a contagious disease under these circumstances, as he would render himself liable to a suit for defamation of character. A case of this sort occurred in this vicinity some years ago in which it cost a reputable physician upwards of a thousand dollars to defend his diagnosis.

"Surgical sterilization is safe and efficient in preventing procreation, but it does not diminish immorality or the spread of social disease. Nine states have enacted so-called eugenic laws legalizing sterilization under certain conditions, but for various reasons only one, Indiana, has thus far resorted to the practice to any extent. The measure is in its trial stage and probably has a limited field of usefulness, but it is not so effective as segregation. Segregation of defectives and delinquents, however, is practicable for only a limited number and must necessarily be confined to certain classes. It is the only method thus far suggested that affords absolute control of irresponsible persons.

"A judicious, persistent campaign of education would seem to be a practical method of attacking this important problem. Impress upon the people the fact that, as a rule, like begets like; that healthy parents are necessary for healthy offspring; that the so-called social diseases are not only very common, but very serious in their effects; that many victims never recover from them; that many innocent persons suffer from them; that their influence may persist indefinitely; that no one who has ever been infected should consider matrimony until assured by a competent physician that the disease has entirely disappeared; that a continent life is natural and healthful; that a large proportion of immoral women are infected, although many may not know it; that neither party should expect more than he can give; in other words, that there should be but one standard of virtue. Let the people know these facts and knowing them take the consequences of their transgression. They could no longer take refuge behind the cloak of ignorance.

"The only effective method of preventing procreation among the insane, feeble-minded, epileptics, drunkards and criminals is by the separation of the sexes. No better means of accomplishing this object has yet been devised than our asylums, special schools, prisons, colonies and homes.

"A very considerable proportion of the victims of social disease are innocent of any moral offence. They are unfortunate, but not guilty. For their sake, as well as for that of the community. the victims of these diseases should be treated, not upon moral grounds, but as other contagious diseases are treated. They should be isolated so far as may be during the most dangerous period of their malady. The public hospitals should have proper facilities for their care. Only by some such method will the diseases be curtailed to any great extent and the public receive that protection so desirable for its welfare."

Correspondence.

THE PROTEAN ASPECTS OF SYPHILIS.

Boston, June 5, 1913.

Mr. Editor: Those physicians who are interested in the subject of syphilis and its many vagaries are occasionally accused by their professional brethren of viewing all patients through roseola-tinted glasses.

The following case, reported by Browning and McKenzie, (The Diagnosis and Treatment of Syphilis, 1912), serves to show the importance of an open mind on this subject. "The patient, a young man of 23 was seen in June, 1910, with enlarged glands on the right side of the neck, the enlargement having been present intermittently since childhood. One of the glands was removed. The histological appearances excluded any malignant tumor, but were not characteristic of tuberculosis. By October, 1910, the glandular enlargement had increased greatly and extended down to the clavicle. There was no ulceration of the mass, although the overlying skin was reddened: the patient had an elevated temperature 102-103 F. and suffered from dyspnea. In November, tracheotomy had to be performed to relieve the dyspnea; tissue was at the same removed from the neck; it was mainly caseous, with a small area of granulation tissue. The appearances did not suggest tuberculosis and no tubercle bacilli were found. The patient's condition became worse, especially the dyspnea; a fluctuating swelling had by this time developed in the region of the left sterno-clavicular joint. The prognosis of an early fatal issue was made. On December 10 a positive Wassermann reaction was obtained. Potassium iodide was then prescribed up to 4 grams daily. Very rapid improvement in the general condition, dyspnea, etc., occurred. By Jan. 14, 1911, the glandular enlargement and the sterno-clavicular swelling had almost disappeared."

Very truly yours,

WM. PEARCE COUES, M.D.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., and at the Marine

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Hospitals at Boston, Mass.; Chicago, Ill.; New Orleans, La.; and San Francisco, Cal., on Monday, July 7, 1913, and Monday, August 4, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The following is the usual order of the examinations: 1. Physical; 2. Oral; 3. Written; 4. Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and will serve wherever assigned to duty.

The examiniations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercises consits of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2000, passed assistant surgeons $2400, surgeons $3000, senior surgeons $3500, and assistant surgeon generals $4000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

The examination usually covers a period of about 10 days.

For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

CONFERENCE ON WORK OF PSYCHOPATHIC HOSPITAL.

On Tuesday, June 24th, a conference on the work of the first year of the Psychopathic Department of the Boston State Hospital was held in the assembly room of the Hospital. Remarks were made by Dr. Walter Channing, Chairman of the Board of Trustees; Judge Harvey H. Baker of the Juvenile Court; Dr. John G. Blake, Trustee of the Gardner State Colony, and the members of the staff. Many subjects of much practical interest were discussed by the twelve speakers demonstrating the admirable activity of the Hospital during its first year of service to the community. Dr. E. E. Southard, Director, outlined future work to be undertaken. It is not to be questioned that this institution has entered upon a career of definite and far reaching usefulness.

RECENT DEATHS.

DR. H. E. SNOW, of Belmar, Monmouth County, N. J., who was graduated from Rush Medical College, Chicago, in 1887, died on June 12. He formerly practised in San Francisco.

DR. JAMES P. MCEVOY, a retired physician of New York, where he was in the health department service for ten years, died at his home in Stamford, Conn., on June 8. He was a graduate of the University of Toronto, and afterwards studied laryngology in Vienna.

DR. JOHN NUTTING FARRAR, who died last week in New York City, was born at Pepperell, Mass., in 1839. He studied medicine and dentistry, and practised the latter profession in New York for many years. He was the author of several papers on "Irregularities of the Teeth."

DR. HOMAN G. HOWE, who died on June 13 at Stamford, Conn., was born in Jericho, Vt., on Sept. 3, 1850. He received the degree of M.D. in 1875 from the University of Vermont. He settled at Hartford, Conn., where he later became president of the Hartford Hospital and chairman of its executive board. He was a member of the American Medical Association, the Connecticut Medical Society, and the Hartford Medical Society. He is survived by Mrs. Howe and by two sons.

DR. RICHARD FLETCHER VAN HEUSEN of New York died on June 15, at the age of 46 years. He was a native of Albany, N. Y., and was graduated from the Albany Medical College in 1895. He spent several years in the West, on account of ill health, and during this time practised in California, Washington and Montana.

DR. DANIEL J. SCULLY, formerly of Brooklyn, N. Y., died suddenly from pneumonia at his home in Colorado Springs on June 15. He was a native of Brooklyn, 38 years old, and a graduate of the College of Physicians and Surgeons, New York.

APPOINTMENT.

DR. WILLIAM PALMER LUCAS, of Boston, has been appointed professor of pediatrics at the University of California Medical School, and chief physician of the pediatric department in the new University Hospital at San Francisco.

RESIGNATION.

DR. WILLIAM N. BULLARD has resigned as Neurologist of the Children's Hospital, Boston.